

ADDITIONAL NOTES ON THE ERIOCAULACEAE. LXX

Harold N. Moldenke

SYNGONANTHUS CAULESCENS (Poir.) Ruhl.

Additional bibliography: Moldenke, *Phytologia* 35: 350—364. 1977.

Davidse and his associates found this plant in marshy areas in open grassland "in marsh with open water in center and grassy margins".

Additional citations: BRAZIL: Minas Gerais: Davidse, Ramamoorthy, & Vital 11590 (Ld). Paraná: Davidse, Ramamoorthy, & Vital 11352 (Ld).

SYNGONANTHUS CAULESCENS var. *ANGUSTIFOLIUS* Moldenke

Additional bibliography: Moldenke, *Phytologia* 35: 354, 357, 359, & 363—364. 1977.

Davidse and his associates describe this plant as 20 cm. tall, with white inflorescences, and encountered it "in marsh with standing water, grasses and sedges dominant", at altitudes of 910—1400 meters, flowering and fruiting in February.

Additional citations: PERU: Amazonas: Woytkowski 8133 (Ld). BRAZIL: Minas Gerais: Davidse & Ramamoorthy 10572 (Ld).

SYNGONANTHUS CAULESCENS var. *DOURADENSIS* Moldenke, *Phytologia* 21: 418. 1971.

Bibliography: Moldenke, *Fifth Summ.* 1: 172 (1971) and 2: 961. 1971; Moldenke, *Phytologia* 21: 418. 1971; Moldenke, *Biol. Abstr.* 53: 5252. 1972.

This variety differs from the typical form of the species in having its involucreal bracts stramineous and more broadly lanceolate. It is known thus far only from the original collection.

Citations: BRAZIL: Goiás: Irwin, Souza, & Reis dos Santos 11753 (N—type).

SYNGONANTHUS CAULESCENS var. *HATSCHBACHII* Moldenke, *Phytologia* 31: 233. 1975.

Bibliography: Moldenke, *Phytologia* 31: 233 & 386. 1975.

This variety differs from the typical form of the species in its more or less incanous aspect and in having the leaves mostly erect or suberect on the stems, at least the uppermost younger ones more or less appressed to the stems, the older ones sometimes spreading, and the apex of all sharply acute. It has been found growing in berjo (sedge meadow) and in "das aguas razas de corre-go", flowering and fruiting in September.

Citations: BRAZIL: Mato Grosso: Hatschbach & Kummrow 35037 (Z-type). Minas Gerais: Hatschbach 35590 (Ld).

SYNGONANTHUS CAULESCENS f. LONGIPES Moldenke, Phytologia 32: 336. 1975.

Bibliography: Moldenke, Phytologia 32: 336 (1975) and 34: 259. 1976; Anon., Biol. Abstr. 61: ACl.718. 1976; Moldenke, Phytologia 35: 359. 1977.

This form differs from the typical form of the species in having its peduncles during anthesis and fruiting up to 30cm. in length. The type collection was erroneously distributed in some herbaria as typical S. caulescens (Poir.) Ruhl. Thus far it is known only from the original collection.

Citations: BRAZIL: Distrito Federal: Irwin, Souza, & Reis dos Santos 8730 (Ld—isotype, N—type, W—2759057—isotype).

SYNGONANTHUS CAULESCENS var. OBTUSIFOLIUS Alv. Silv., Fl. Mont.

1: 358 [as "obtusifolia"]. 1928; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946.

Synonymy: Syngonanthus caulescens var. obtusifolia Alv. Silv., Fl. Mont. 1: 358. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 358 & 416. 1928; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, Résumé 106, 351, & 491. 1959; Moldenke, Fifth Summ. 1: 172 (1971) and 2: 635 & 961. 1971.

This variety is said to differ from the typical form of the species in having its stems erect, 10—25 cm. tall, and the leaves obtuse at their apex. It is based on A. Silveira 613 from "In humidis in Chapada do Couto in inter Serrinha et Itacambira", Minas Gerais, Brazil, collected in "1918 et 1926" and deposited in the Silveira herbarium. On page 614 of his work (1928) Silveira cites the 1918 collection only, so I feel that this is the one which should be designated officially as the type collection. Thus far the variety is known only from the two original collections.

SYNGONANTHUS CAULESCENS var. PRO CERUS (Klotzsch) Moldenke, Bull. Torrey Bot. Club 68: 70. 1940.

Synonymy: Paepalanthus procerus Klotzsch in Schomb., Reisen Brit.-Guian. 3: [Faun. & Fl. Brit.-Guian.] 1115. 1848. Syngonanthus caulescens var. procerus (Klotzsch ex Schomb.) Moldenke apud J. A. Clark, Card-Ind. Gen. Sp. & Var. Pl. issue 170. 1942. Syngonanthus caulescens var. procerus (Kl.) Standl. ex Moldenke, Phytologia 25: 244, in syn. 1973. Eriocaulon giganteum Mart. ex Moldenke, Phytologia 31: 397, in syn. 1975 [not E. giganteum Afzel., 1856, nor Beauverd, 1909, nor (Beauverd) Beauverd, 1949, nor Riedel, 1959]. Paepalanthus splendens Kunth ex Moldenke, Phytologia 31: 405, in syn. 1975 [not P. splendens Mart., 1894].

Bibliography: Klotzsch in Schomb., Reisen Brit.-Guian. 3: [Vers. Faun. & Fl. Brit.-Guian.] 1115. 1848; Körn. in Mart., Fl. Bras. 3 (1): 466. 1863; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Ruhl. in Engl., Pflanzenreich 13 (4-30):

268. 1903; Moldenke, Bull. Torrey Bot. Club 68: 70. 1940; J. A. Clark, Card-Ind. Gen. Sp. & Var. Pl. issue 170. 1942; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Alph. List Cit. 1: 238. 1946; Moldenke, Known Geogr. Distrib. *Erioc.* 17, 52, & 57. 1946; Moldenke, Known Geogr. Distrib. *Verbenac.*, [ed. 2], 91 & 212. 1949; Moldenke, *Phytologia* 4: 302. 1953; Moldenke, *Résumé* 106 & 491. 1959; Moldenke, *Résumé Suppl.* 1: 22. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, *Fifth Summ.* 1: 172 (1971) and 2: 589 & 961. 1971; Moldenke, *Phytologia* 25: 244 (1973), 26: 230 & 376 (1973), 31: 383, 386, 397, & 405 (1975), 33: 189 & 191 (1976), 34: 259 & 395 (1976), and 35: 354, 357, & 359. 1977.

This variety differs from the typical form of the species in having its stems greatly elongate, 12—25 or more cm. long, the leaves very dense, spreading, obtuse or subacute at the apex, the peduncles very much elongate, and with scattered peduncles arising from various portions of the stem.

Recent collectors refer to this plant as an herb, the stem stout, firmly erect, 12—20 cm. long, densely foliose, the leaves thick, firm, erect or widely divergent, 2—4.5 cm. long, 4—5 mm. wide, very conspicuously many-veined, abruptly acute, the lower ones brown-orange beneath, the peduncles in a terminal umbel and often also scattered in the leaf-axils or at the ends of very short axillary branchlets, mostly much elongated, 10—40 cm. long, and the flowers white.

The plant has been found growing in shallow water of wet campo slopes, at 300 meters altitude, flowering and fruiting in March, August, and October. Maguire and his associates refer to it as "frequent in morichal and lagunas".

The *Eriocaulon giganteum* of Afzelius, referred to in the synonymy above, is a synonym of *Mesanthemum radicans* (Benth.) Körn., that of Beauverd is *Eriocaulon beauverdi* Moldenke, and that of Riedel is *Paepalanthus speciosus* (Bong.) Körn. It should also be noted here that my original publication of this trinomial bears the date "1941" on its cover, but was actually validly published (and a copy received in at least the library of the New York Botanical Garden) on December 31, 1940.

Material of this variety has been distributed widely as typical *S. caulescens* (Poir.) Ruhl., *Paepalanthus caulescens* Kunth, and *P. splendens* Kunth. On the other hand, the *Glazion* 19995, previously cited by me as this variety, and *Mexia* 5733, so distributed in some herbaria, are actually *Paepalanthus coloides* Ruhl.

Citations: VENEZUELA: Bolívar: Maguire, Wurdack, & Bunting 35909 (Mu). BRAZIL: Bahia: Martins s.n. [in arena humida ad fluv. Belmonte, 1818] (Mu). Distrito Federal: Irwin, Souza, & Reis dos Santos 11471 (N). Goiás: Lützelburg 357 (Mu, N), 1434 [N. Y. Bot. Gard. Type Photo, new ser., 8835] (Mu, N, N—photo, Z—photo). State undetermined: G. Gardner 2748 (W—936283, W—1140335); Glazion 13282 (W—1124132).

SYNGONANTHUS CAULESCENS var. PROLIFERUS Moldenke, Phytologia 6: 329. 1958.

Bibliography: Moldenke, Phytologia 6: 329. 1958; Moldenke, Bi-ol. Abstr. 33: 1215. 1959; Moldenke, Résumé 106 & 491. 1959; Hocking, Excerpt. Bot. A.5: 44. 1962; Moldenke, Fifth Summ. 1: 172 (1971) and 2: 961 & 967. 1971; Moldenke, Phytologia 29: 321. 1974.

This variety differs from the typical form of the species in having many or most of the inner bractlets enlarged, foliaceous, green, to 7 mm. long and 1 mm. wide, glabrous, sharply attenuate at the apex, and often more or less scarious-margined. It is known thus far only from the original collection.

Purists will insist that the varietal epithet of this plant should be written "prolifer", but (as previously noted), Latin experts assure me that both this form and the one originally published are correct.

Citations: BRAZIL: Santa Catarina: Smith & Reitz 8681 (W—2248754—type).

SYNGONANTHUS CENTAUROIDES (Bong.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 277—278. 1903.

Synonymy: Eriocaulon centauroides Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 635. 1831. Eriocaulon centaureoides Bong. apud D. Dietr., Syn. Pl. 5: 268. 1852. Paepalanthus centauroides (Bong.) Körn. in Mart., Fl. Bras. 3 (1): 434. 1863. Paepalanthus centauroides Körn. in Mart., Fl. Bras. 3 (1): 434. 1863. Dupatya centauroides (Bong.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya centauroides Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Dupatya centauroides Kuntze apud Ruhl. in Engl., Pflanzenreich 13 (4-30): 277, in syn. 1903. Syngonanthus centauroides Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908. Syngonanthus centaureoides (Bong.) Ruhl. apud Alv. Silv., Fl. Mont. 1: 416. 1928.

Bibliography: Bong., Ess. Monog. Erioc. 35. 1831; Bong., Mém. Acad. Sci. Imp. St. Pétersb., ser. 6, 1: 635. 1831; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 579 & 612. 1841; D. Dietr., Syn. Pl. 5: 268. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 280 & 333. 1855; Körn. in Mart., Fl. Bras. 3 (1): 434, 507, & 508. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 877 (1893) and imp. 1, 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 276—278, 285, & 289. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Alv. Silv., Fl. Mont. 1: 416. 1928; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 877 (1946) and imp. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Erioc. 17, 29, 33, 46, & 57. 1946; Moldenke, Alph. List Cit. 3: 855 (1949) and 4: 1283. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, Phytologia 4: 303 &

311. 1963; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 106, 279, 286, 324, 351, & 491. 1959; Moldenke, Résumé Suppl. 1: 6. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 877 (1960) and imp. 3, 2: 401. 1960; Renné, Levant. Hort. Inst. Agron. Minas 71. 1960; Moldenke, Résumé Suppl. 3: 35 (1962), 12: 12 (1965), and 18: 9. 1969; Moldenke, Phytologia 20: 108. 1970; Moldenke, Fifth Summ. 1: 172 & 479 (1971) and 2: 496, 579, 635, & 961. 1971; Moldenke, Phytologia 25: 230 (1973) and 34: 273 & 275. 1976.

This species is based on L. Riedel 1063 from "in pratis humidis paludosis Serra da Lapa", Minas Gerais, Brazil, and probably deposited in the Leningrad herbarium. An isotype at Berlin was photographed by Macbride as his type photograph number 10677. The plate "LIV", cited by Bongard (1831), apparently was never published and probably exists only in the Leningrad herbarium or library. Jackson (1893) cites it as pl. "45", as does Kunth (1841), but Bongard's reference is plainly to "Tabula LXV".

The original description of the species is "Acaule; foliis elongatis, basi dilatatis ciliatisque, linearibus, obtusiusculis; pedunculo dolitario, puberulo; vagina oblique fissa.....Bracteeae capitulum involucentes numerosae, obtusae, flavicantes, margine albo-scariosae. Praecedenti [S. xeranthemoides (Bong.) Ruhl.] affine, sed notis indicatis facilius distinguendum."

Recent collectors have encountered this plant on wet sandy campos and damp swampy meadows, at altitudes of 425--1200 meters, flowering in December. Ruhland (1903) cites only the type collection; Silveira (1928) adds A. Silveira 215 from Minas Gerais.

Material of this species has been misidentified and distributed in some herbaria as S. tricostatus Gleason. On the other hand, the G. Gardner 704, distributed as S. centauroides, actually is Leiothrix flavescens (Bong.) Ruhl.

Additional citations: BRAZIL: Minas Gerais: Hatschbach 27273 (Ft, S); A. Lutz 1582, in part [Herb. Lutz 1582, in part] (Ja); L. Riedel 1063 [Macbride photos 10677] (B—isotype, G—isotype, N—photo of isotype, Ut—397—isotype, W—photo of isotype). Pará: Egler & Raimundo s.n. [Egler 1225; Herb. Mus. Goeldi 24272] (Bm), s.n. [Egler 1249; Herb. Mus. Goeldi 24296] (Z); Murça Pires, Black, Wurdack, & Silva 6134 (N), 6552 (N). MOUNTED ILLUSTRATIONS: drawings by Körnicke (B).

SYNGONANTHUS CENTAUROIDES var. SUBAPPRESSUS Ruhl. in Engler, Pflanzenreich 13 (4-30): 278 [as "subappressa"]. 1903; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946.

Synonymy: Syngonanthus centauroides var. subappressa Ruhl. in Engl., Pflanzenreich 13 (4-30): 278. 1903.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 278 & 293. 1903; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Phytologia 2: 374 (1947) and 2: 494. 1948; Moldenke, Alph. List Cit. 4: 1283. 1949; Moldenke, Known Geogr. Distrib.

Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, *Phytologia* 4: 303. 1953; Moldenke, *Résumé* 106, 351, & 491. 1959; Moldenke, *Fifth Summ.* 1: 172 (1971) and 2: 635 & 961. 1971; Moldenke, *Phytologia* 25: 230. 1973.

This variety differs from the typical form of the species in having the "bracteis involucrantibus planiusculis, subappressis, griseo-flavicintibus" and is based on Sena s.n. [Herb. Schwacke 14567] from the Serra do Cipó, Minas Gerais, Brazil, flowering in August, and deposited in the Berlin herbarium. Thus far it is known only from the original collection. The Leite 432, distributed as S. centauroides var. subappressus and so cited by me in an earlier installment of these notes, actually is Eleocharis nudipes (Kunth) Palla in the Cyperaceae.

SYNGONANTHUS CENTAUROIDES var. TERETIPES Alv. Silv., *Fl. Mont.* 1: 395—396. 1928.

Bibliography: Alv. Silv., *Fl. Mont.* 1: 395—396 & 416. 1928; Moldenke, *Known Geogr. Distrib. Erioc.* 17 & 57. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 91 & 212. 1949; Moldenke, *Résumé* 106 & 491. 1959; Moldenke, *Fifth Summ.* 1: 172 (1971) and 2: 961. 1971.

This variety differs from the typical form of the species in having "pedunculis teretibus et valde tortis. Pedunculi 40 cm alti, folia duplo superantes." It is based on A. Silveira 652 from "In pratis montis Serra do Cipó", Minas Gerais, Brazil, collected in April, 1905, and deposited in the Silveira herbarium. On page 416 of his work (1928) Silveira cites a Silveira 565 from the same locality, but whether this represents a second collection or is intended as a correction of the original citation or is a typographic error is not clear. The taxon has otherwise not been collected again.

SYNGONANTHUS CHAPADENSIS Alv. Silv., *Fl. Mont.* 1: 330—331. 1928.

Bibliography: Alv. Silv., *Fl. Mont.* 1: 330—331 & 416. 1928; A. W. Hill, *Ind. Kew. Suppl.* 9: 271. 1938; Moldenke, *Known Geogr. Distrib. Erioc.* 17 & 57. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 91 & 212. 1949; Moldenke, *Résumé* 106 & 491. 1959; Moldenke, *Fifth Summ.* 1: 172 (1971) and 2: 961. 1971.

This species is based on A. Silveira 660 from "In campis in Chapada do Couto", Minas Gerais, Brazil, collected in April, 1918, and deposited in the Silveira herbarium. Thus far it is known only from the original collection and Silveira (1928) says of it "A S. heterotricho Alv. Silv. foliorum indumentum facile distinguitur".

SYNGONANTHUS CHRYSANTHUS (Bong.) Ruhl. in Engl., *Pflanzenreich* 13: (4-30): 256. 1903.

Synonymy: Eriocaulon chrysanthum Bong., *Mém. Acad. Imp. Sci. St. Pétersb.*, ser. 6, 1: 628. 1831. Paepalanthus morulus Kunth, *Enum. Pl.* 3: 533. 1841. Eriocaulon morulum Kunth ex Steud., *Syn.*

Pl. Glum. 2: [Cyp.] 281. 1855. Paepalanthus chrysanthus (Bong.) Körn. in Mart., Fl. Bras. 3 (1): 454. 1863. Paepalanthus chrysanthus Körn. in Mart., Fl. Bras. 3 (1): 454. 1863. Dupatya chrysantha (Bong.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Eriocaulon morulum Steud. apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 878, in syn. 1893. Dupatya chrysantha Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Syngonanthus chrysanthus Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908. Syngonanthus chrysanthus (Bong.) Ruhl. ex Reitz, Sellowia 7: 124, sphalm. 1956.

Bibliography: Bong., Ess. Monog. Erioc. 28. 1831; Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 628. 1831; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 533, 575, 613, & 625. 1841; D. Dietr., Syn. Pl. 5: 262 & 267. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 279, 281, 333, & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 454 & 506. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 877 & 878 (1893) and imp. 1, 2: 401 & 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 245, 256, 285, 286, 289, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1911; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 877 & 878 (1946) and imp. 2, 2: 401 & 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 17, 29, 33, 37, 46, 51, & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Rambo, An. Bot. Herb. Barb. Rodr. 1: 128 (1949) and 2: 128. 1950; Moldenke, Phytologia 4: 303 & 311. 1953; Rambo, Sellowia 6: 130. 1954; Reitz, Sellowia 7: 124-125 (1956) and 11: 31 & 131. 1959; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 106, 279, 286, 290, 324, 326, & 491. 1959; Moldenke, Résumé Suppl. 1: 6. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 877 & 878 (1960) and imp. 3, 2: 401 & 402. 1960; Reitz, Sellowia 13: 52, 53, 72, & 90. 1961; Moldenke, Résumé Suppl. 10: 7. 1964; Moldenke, Phytologia 20: 108. 1970; Reitz, Sellowia 22: 137. 1970; Moldenke, Fifth Summ. 1: 172 & 479 (1971) and 2: 496, 506, 579, 586, 638, & 961. 1971; Moldenke, Biol. Abstr. 56: 3000. 1973; Moldenke, Phytologia 25: 230 (1973) and 34: 276. 1976.

This species is based on a collection from Rio de Janeiro, cited by Bongard (1831) in his original description without designation of collector but received from Lindley, who, in turn, received it from the important and heterogeneous old D. Prescott herbarium. Bongard's original description is "acaule; foliis vagina brevioribus linearibus acuminatis subpubescentibus; pedunculo solitario pubescente; vagina oblique fissa apice lacimulata. Tab. XLIII. Habit. prope Rio-Janeiro. Flor. Decembri. ① Ex herbario D. Prescott, cui cel. Lindley." The plate to which he here refers was apparently never published and probably exists only in the Leningrad library or herbarium. The type specimen is also to be looked for in the Leningrad herbarium.

Kunth's Paepalanthus morulus is based on Sellow collections

["d", D.2404, and s.n.] from "Brasilia meridionalis" and Gaudichaud 104 from Santa Catarina Island, Brazil, deposited in the Berlin herbarium. It is of interest to note that Jackson (1893) reduces both Eriocaulon morulum and E. chrysanthum to Paepalanthus chrysanthus, but in the following year (1894) reduces Paepalanthus chrysanthus to P. morulus!

Recent collectors have encountered this plant in "banhado", campos, swamps, and wet sandy places in general, at altitudes of 2—5 meters, flowering and fruiting from November to February, in flower also in October, and describe the plant as an annual herb with cream-colored flowers. Lindeman and Porto found it in "zona pantanosa na beira da lagoa na restinga atrás" and in a "lugar úmido na restinga atrás das dunas primárias".

Rambo (1950) comments that "O fato de ter sido esta espécie, a mais comum e mais abundante das Eriocauláceas do litoral, encontrada unicamente por Sellow (n. 2.404), bem demonstra a deficiência das pesquisas nestra região. Frequente em Sombrio, cresce aos milhares sem conta de exemplares nos terrenos húmidos, gramíneos ou pantanosos entre as dunas fixadas pela vegetação. Parece escassear rapidamente em direção sul, pois não a encontrei na linha Viamão -- Cidreira; nem Malme a cita para os arredores da cidade do Rio Grande."

Vernacular names recorded for this plant are "capim manso", "capitoatinga", "gravatá manso", and "semprevivas do campo". In habit and general appearance it seems very close to Leiosthrix arechavaletae (Körn.) Ruhl., distinguishable only by the shape of the involucre bractlets, the 5- or 6-costate pilose peduncles, and, of course, the essential floral characters.

In the index to the Steudel (1855) work there is mention of page "181" as bearing a reference to this species, but this appears to be a typographic error for page 281, on which Eriocaulon morulum is described. Ruhland (1903) cites only Gaudichaud 104, Sellow 2404, and Ule 581 & 1386.

Material of S. chrysanthus has been misidentified and distributed in some herbaria as S. gracilis (Bong.) Ruhl., Leiosthrix flavescens (Bong.) Ruhl., and Paepalanthus sp.

Additional citations: BRAZIL: Rio Grande do Sul: Leite 142 (Ja-43994), 307 (Sp-47132), 1284 (A, A); Lindeman ICN.9094 (Ut-320396); Lindeman & Porto ICN.9123 (Ut-320395); Pabst 10157 (Ja-77109, Ja); Rambo 56191 (Rd-12292), 63540 (S); A. R. Schultz 324 (W-1978445); Sehnen 3005 (B); Sellow D.2404 (B), "d" (B), s.n. [Brasilia] (N-photo); J. Vidal IV.339 [Herb. Mus. Nac. Rio Jan. 105081] (Ca-1114719, Ld), IV.481 [Herb. Mus. Nac. Rio Jan. 126557] (Ac). Santa Catarina: Collector undetermined 409 (Ja-126558); Occhioni 4700 [Herb. Cadeira Bot. 11269] (Ld); Rambo 56850 (Rd-12291); Reitz 4825 [Herb. Barb. Rodr. 6345] (N, N), 5567 (N), 5604 (N); Reitz & Klein 661 (Cb), 1355 [Herb. Barb. Rodr. 8786] (N, Z);

Sehnm 3005 (Rd—12290); Smith & Reitz 5874 (Z); Ule 1386 (B, Hg, N—photo, Z—photo). Santa Catarina Island: Gaudichaud 104 (B, G, P); Klein & Bresolin 6279 (Ac); Klein, Souza, Sobrinho, & Bresolin 6476 (Ld). MOUNTED ILLUSTRATIONS: drawings & notes by Körn-icke (B).

SYNGONANTHUS CHRYSANTHUS var. *CASTRENSIS* Moldenke & Smith ex Moldenke, *Phytologia* 25: 431. 1973.

Bibliography: Moldenke, *Phytologia* 25: 431. 1973; Moldenke, *Biol. Abstr.* 56: 3000. 1973.

This variety differs from the typical form of the species in having only 3-costate peduncles. Thus far it is known only from the original collection.

Citations: BRAZIL: Paraná: Vidal III.74 [Silva Araujo s.n.; Herb. Mus. Nac. Rio Jan. 77012] (Ja—77012—type, Z—photo of type).

SYNGONANTHUS CHRYSOLEPIS Alv. Silv., *Fl. Mont.* 1: 390—391, pl. 249. 1928.

Bibliography: Alv. Silv., *Fl. Mont.* 1: 390—391 & 416. 1928; Wangerin in Just, *Bot. Jahresber.* 57 (1): 477. 1937; Fedde in Just, *Bot. Jahresber.* 57 (2): 895. 1938; A. W. Hill, *Ind. Kew. Suppl.* 9: 271. 1938; Worsdell, *Ind. Lond. Suppl.* 2: 426. 1941; Moldenke, *Known Geogr. Distrib. Erioc.* 17 & 57. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 91 & 212. 1949; Moldenke, *Résumé* 106 & 491. 1959; Moldenke, *Fifth Summ.* 1: 172 (1971) and 2: 961. 1971.

Illustrations: Alv. Silv., *Fl. Mont.* 1: pl. 249. 1928.

This species is based on an unnumbered collection by Dr. J. Michaeli from sandy campos in the Serra do Cipó, Minas Gerais, Brazil, collected in August, 1921, and deposited in the Silveira herbarium. On page 416 of his work (1928) Silveira cites also an A. Silveira 719 from the Serra do Cipó, also collected in 1926 — whether this is a second collection of the species or merely a herbarium number assigned to the type collection is not clear. In his text Silveira refers to a plate "CCL" as illustrating this species, but *S. chrysolepis* is actually depicted on plate 249 [plate 250 is lacking]. Silveira comments that the "Species ob pilositatem foliorum vaginarumque valde distincta".

SYNGONANTHUS CILIATUS Alv. Silv., *Fl. Mont.* 1: 391—392, pl. 261. 1928.

Bibliography: Alv. Silv., *Fl. Mont.* 1: 391—392 & 416, pl. 261. 1928; Wangerin in Just, *Bot. Jahresber.* 57 (1): 477. 1937; Fedde in Just, *Bot. Jahresber.* 57 (2): 895. 1938; A. W. Hill, *Ind. Kew. Suppl.* 9: 271. 1938; Worsdell, *Ind. Lond. Suppl.* 2: 426. 1941; Moldenke, *Known Geogr. Distrib. Erioc.* 17 & 57. 1946; Moldenke, *Known Geogr. Distrib. Verbenac.*, [ed. 2], 91 & 212. 1949; Moldenke, *Résumé* 106 & 491. 1959; Moldenke, *Fifth Summ.* 1: 173 (1971) and 2: 961. 1971.

Illustrations: Alv. Silv., *Fl. Mont.* 1: pl. 261. 1928.

This species is based on A. Silveira 546 from "In campis arenosis in Serra do Cabral", Minas Gerais, Brazil, collected in May, 1910, and deposited in the Silveira herbarium. In his text Silveira (1928) refers to "Tabula CCLI" as illustrative of the species and both Wangerin (1937) and Worsdell (1941) refer to it as plate "250", but the plate is actually labeled "CCLXI". Silveira notes that the "Species magnitudine foliorum pedunculorum que et foliis ciliatis facile distinguenda".

SYNGONANTHUS CIPOËNSIS Ruhl. in Engl., Pflanzenreich 13 (4-30): 278. 1903.

Synonymy: Syngonanthus cipoensis Alv. Silv., Fl. Mont. 1: 416. 1928. Syngonanthus cipoënsis Alv. Silv. ex Moldenke, Résumé 351. 1959.

Bibliography: Ruhl. in Engl., Pflanzenreich 14 (4-30): 276, 278, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Phytologia 2: 498. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, Résumé 106, 351, & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 636 & 961. 1971; Moldenke, Phytologia 34: 277. 1976.

This species is based on an unnumbered Sena collection [Herb. Schwacke 12288], collected in June, 1896, in the Serra do Cipó, Minas Gerais, Brazil, and deposited in the Berlin herbarium. I am assuming that the "S. cipoensis Alv. Silv." of Silveira (1928) is the same taxon as the S. cipoënsis of Ruhland, the name for which he felt should be accredited to him rather than to Ruhland, but since the only collection he cites (A. Silveira 735, collected in 1905 in the same Serra do Cipó) is not the same one which Ruhland cites, and since I have not as yet been able to see Silveira's collection, the name is placed in this synonymy tentatively. Ruhland (1903) cites only the original 1896 collection and comments that the "Species perbene distincta. Forma et indumentum foliorum et vaginarum insignia".

Citations: BRAZIL: Minas Gerais: Sena s.n. [Herb. Schwacke 12288] (B—type).

SYNGONANTHUS CIRCINNATUS (Bong.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 279. 1903.

Synonymy: Eriocaulon circinnatum Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 633. 1831. Eriocaulon circinnatum Bong. apud Kunth, Enum. Pl. 3: 613. 1841. Paepalanthus circinnatus (Bong.) Körn. in Mart., Fl. Bras. 3 (1): 429—430. 1863. Paepalanthus circinnatus Körn. in Mart., Fl. Bras. 3 (1): 299 & 429. 1863. Dupatya circinnata (Bong.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya circinnata Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Syngonanthus circinnatus Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908.

Bibliography: Bong., Ess. Monog. Erioc. 331. 1831; Bong., Mém.

Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 633. 1831; Kunth, Enum. Pl. 3: 578, 585, & 613. 1841; D. Dietr., Syn. Pl. 5: 268. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 280 & 333. 1855; Körn. in Mart., Fl. Bras. 3 (1): 299, 429—430, 507, & 508. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 878 (1893) and imp. 1, 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4—30): 276, 279, 285, 289, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 878 (1946) and imp. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Erioc. 17, 29, 33, 46, & 57. 1946; Moldenke, Alph. List Cit. 3: 855. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, Phytologia 4: 303 & 311. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 106, 279, 287, 324, & 491. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 878 (1960) and imp. 3, 2: 401. 1960; Moldenke, Résumé Suppl. 12: 12. 1965; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 148. 1969; Moldenke, Fifth Summ. 1: 173 & 479 (1971) and 2: 497, 580, 636, & 961. 1971.

This species is based on L. Riedel 1044 from "In lapidosis glareosis Serra da Lapa", Minas Gerais, Brazil, deposited in the Leningrad herbarium. An isotype was photographed in Berlin by Macbride as his type photograph number 10678. Bongard's original description is "Acaule; pusillum; foliis radicalibus pedunculum subaequantibus, linearibus, pubescentibus, circinnatis; pedunculis subsolitariis, pubescentibus; vagina obliqua fissa." The "Tab. XXXIX" to which he refers apparently was never published and is probably only to be found in the Leningrad library or herbarium. The plant has been collected in flower in November. Ruhland (1903) cites only the original collection.

Additional citations: BRAZIL: Minas Gerais: L. Riedel 1044 [Macbride photos 10678] (B—*isotype*, Ut—398—*isotype*, W—*photo of isotype*). MOUNTED ILLUSTRATIONS: drawings by Körnicke (B).

SYNGONANTHUS COMOSUS Alv. Silv., Fl. Mont. 1: 372—373, pl. 236. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 372—373 & 446, pl. 236. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, Résumé 106 & 491. 1959; Moldenke, Phytologia 31: 386 (1975), 34: 257 & 259 (1976), and 35: 31. 1976.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 236. 1928.

This species is based on A. Silveira 753, collected in June, 1925, "Sub rupibus, locis umbrosis, in Serra Geral inter Diamantina et Serro", Minas Gerais, Brazil, and deposited in the Silveira herbarium. On page 446 of his work (1928) Silveira gives only "Diamantina" as the type locality. In his text he refers to

"Tabula CCXXXVII" as illustrative of this species, but the plate in question is labeled "CCXXXVI" — plate 237 illustrates S. glaucus Alv. Silv.

Bunting and his associates encountered what may be this species in Venezuela and describe it as "common.....a delicate herb in wet sand and in standing water, peduncles nearly white-buff", growing at 125—140 meters altitude apparently in close association with Paepalanthus saxicola var. conicus Moldenke.

Citations: VENEZUELA: Amazonas: Bunting, Akkermans, & Van Roode 3738b (Ut—320385).

SYNGONANTHUS COMOSUS var. HARLEYI Moldenke, Phytologia 31: 233—234. 1975.

Bibliography: Moldenke, Phytologia 31: 233—234 & 386. 1975.

This variety differs from the typical form of the species in having its leaves, sheaths, and peduncles (except the latter in age) rather densely and very conspicuously spreading-hirsute with rather long, stiffish, light-brownish hairs. Thus far it is known only from the original collection.

Citations: BRAZIL: Bahia: Harley, Renvoize, Erskine, Brighton, & Pinheiro in Harley 15952 (Z—type).

SYNGONANTHUS COMPACTUS Ruhl. ex Ule in Engl., Bot. Jahrb. 40: 162, nom. nud. 1907.

Synonymy: Syngonanthus uleanus Ruhl. ex Moldenke, Résumé Suppl. 1: 23, in syn. 1959.

Bibliography: Ruhl. ex Ule in Engl., Bot. Jahrb. 40: 162. 1907; Prain, Ind. Kew. Suppl. 4, imp. 1, 231. 1913; Alv. Silv., Fl. Mont. 1: 416. 1928; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Phytologia 2: 492. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, Phytologia 4: 303. 1953; Prain, Ind. Kew. Suppl. 4, imp. 2, 231. 1958; Moldenke, Résumé 106 & 491. 1959; Moldenke, Résumé Suppl. 1: 23 (1959) and 7: 5. 1963; Moldenke, Fifth Summ. 1: 143 & 173 (1971) and 2: 638 & 961. 1971.

This species (as well as S. uleanus) is based on Ule 6175 from Amazonas, Brazil, deposited in the Berlin herbarium where it was photographed by Macbride as his type photograph number 10679. Woytkowski encountered it in wet, sandy, open places, at 1400 m. altitude, flowering in January, and describes it as 10—15 cm. tall, with white flowers. Silveira (1928) cites A. Silveira 219 from Manaus, Amazonas, Brazil. That the same species should grow in the low Amazonian rainforest at Manaus and also on the very high altitudes in Peru seems difficult to believe and demands further study. The Hutchison & Wright 5556, Segástegui 6062, and Wurdack 1338, distributed as S. compactus, are actually S. peruvianus Ruhl.

Citations: PERU: San Martín: Woytkowski 6204 (Z). BRAZIL: Amazonas: Ule 6175 [Macbride photos 10679] (B—type, N—photo of type, N—photo of type, W—photo of type, Z—isotype).

SYNGONANTHUS COSTATUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 252—253. 1903.

Synonymy: Syngonanthus niveus var. rosulatum Kunth ex Moldenke, Phytologia 4: 303, in syn. 1953. Paepalanthus costatus Ruhl. ex Moldenke, Résumé Suppl. 1: 20, in syn. 1959. Leiosthrix lindavii Ruhl. ex Moldenke, Résumé 309, in syn. 1959. Syngonanthus niveus var. rosulatus Kunth ex Rennó, Levant. Herb. Inst. Agron. Minas 72. 1960. Leiosthrix lindavii Ruhl. ex Rennó, Levant. Herb. Inst. Agron. Minas 69. 1960.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 244, 252—253, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Alv. Silv., Fl. Mont. 1: 416. 1928; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Alph. List Cit. 2: 412 (1948) and 3: 935. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, Phytologia 4: 303. 1953; Moldenke, Résumé 106, 309, 352, & 491. 1959; Moldenke, Résumé Suppl. 1: 20. 1959; Rennó, Levant. Herb. Inst. Agron. Minas 69, 71, & 72. 1960; Moldenke, Résumé Suppl. 3: 35. 1962; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 547, 580, 638, & 961. 1971.

This species is based on H. de Magalhães 1366, collected in moist places in the Serra de Ibitipoca, Minas Gerais, Brazil, in June, 1896, and is deposited in the Berlin herbarium. Ruhland (1903) cites only the original collection, but Silveira (1928) adds A. Silveira 219, collected in "Ibitipoca", in 1902. The type collection of Leiosthrix lindavii is Magalhães Gomes 3108.

Additional citations: BRAZIL: Minas Gerais: Magalhães Gomes 1364 (B), 1366 (B—type); A. Silveira 520 [Herb. Marie-Victorin 12434] (N—photo, Z—photo).

SYNGONANTHUS COWANI Moldenke, Mem. N. Y. Bot. Gard. 8: 99—100. 1953.

Synonymy: Syngonanthus cowanii Moldenke, Phytologia 31: 408, in syn. 1975.

Bibliography: Moldenke, Mem. N. Y. Bot. Gard. 8: 99—100. 1953; Moldenke, Phytologia 4: 303. 1953; Moldenke, Résumé 69, 73, & 491. 1959; G. Taylor, Ind. Kew. Suppl. 12: 138. 1959; Moldenke, Fifth Summ. 1: 120 & 127 (1971) and 2: 961. 1971; Moldenke, Phytologia 31: 408. 1975.

This species is based on Maguire, Cowan, & Wurdack 30466 from on "sabita" 500 m. southeast of Savanna III, at 125 m. altitude, in the Cerro Yapacama, Río Orinoco, Amazonas, Venezuela, collected on December 31, 1950, and deposited in the Britton Herbarium at the New York Botanical Garden. Recent collectors refer to the species as "common", "locally frequent", or "locally occasional" in sand od savannas, at altitudes of 100—150 m., flowering in February, March, and November, and fruiting in March. They refer to the flowers as white.

Additional citations: VENEZUELA: Amazonas: Maguire & Wurdack 34532 (N), 34569 (N); Maguire, Wurdack, & Bunting 36596 (N), 36596a (N), 36740 (N), 37640 (Mu).

SYNGONANTHUS COWANI var. LONGIPEDUNCULATUS Moldenke, Mem. N. Y. Bot. Gard. 9: 282. 1957.

Bibliography: Moldenke, Mem. N. Y. Bot. Gard. 9: 282. 1957; Moldenke, Résumé 69 & 491. 1959; Moldenke, Fifth Summ. 1: 120 (1971) and 2: 961. 1971.

This variety differs from the typical form of the species in having its filiform peduncles 8—13 mm. long, surpassing the uppermost leaves. It is based on Maguire, Wurdack, & Bunting 36290 from a savanna 1 km. west of Cacagual (Piedra Cacaguti), on the Río Atabapo, at 100 meters altitude, Vaupés, Colombia, collected on November 19, 1953, and deposited at the New York Botanical Garden. Thus far it is known only from the original collection.

Citations: COLOMBIA: Vaupés: Maguire, Wurdack, & Bunting 36290 (N--type).

SYNGONANTHUS GRASSINERVIUS Alv. Silv., Fl. Mont. 1: 345—346, pl. 219. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 345—346, 416, & 417, pl. 219. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, Résumé 106 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 961. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 219. 1928.

This species is based on A. Silveira 653 from "In campis arenosis prope Barauna", Minas Gerais, Brazil, collected in April, 1918, and deposited in the Silveira herbarium. On page 416 of his work (1928) Silveira gives "Baraunas" as the type locality. Thus far the species is known only from the original collection.

SYNGONANTHUS GRASSINERVIUS var. GLABRESCENS Alv. Silv., Fl. Mont. 1: 346—347. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 346—347 & 417. 1928; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, Résumé 106 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 961. 1971.

This variety differs from the typical form of the species in having its sheaths glabrous. It is based on A. Silveira 654 from "In campis arenosis prope Diamantina", Minas Gerais, Brazil, collected in April, 1918, and deposited in the Silveira herbarium. On page 417 of his work Silveira (1928) cites a no. "854" from Diamantina, 1918 — whether this is a second collection, a typographic error, or a correction of the number given in the original description is not clear. It should also be noted here that the notation "Tabula CCXIX" appears in his text on p. 347 immediately after the description of the variety, not on p. 346 after the specific description; yet the illustration itself is labeled as representing the typical form and is so cited by Wan-

gerin (1937), Fedde (1938), and Worsdell (1941). Thus far the variety is known only from the original collection.

SYNGONANTHUS CRISPUS Alv. Silv., Fl. Serr. Min. 77. 1908.

Bibliography: Alv. Silv., Fl. Serr. Min. 77. 1908; Fedde & Schust. in Just, Bot. Jahresber. 46 (2): 5. 1924; Alv. Silv., Fl. Mont. 1: 358—359 & 417, pl. 226. 1928; A. W. Hill, Ind. Kew. Suppl. 8: 231. 1933; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, Résumé 106 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 961. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 226. 1928.

This species is based on H. de Magalhães s.n. [Herb. Silveira 225] from "In campis arenosis in Serra da Ibitipoca", Minas Gerais, Brazil, collected in June, 1906, and deposited in the Silveira herbarium. Silveira (1908) says of it: "Species praeter folia leviter crispa certe insignis". It is known thus far only from the original collection. Wangerin (1937) cites the illustration as "CCXXVIA"; Silveira (1928) refers to it in his text as "CCXXVII", but the plate itself is plainly labeled "CCXXVI" and is so cited by Worsdell (1941).

SYNGONANTHUS CRISPUS var. *ITACAMBIRENSIS* Alv. Silv., Fl. Mont. 1: 359. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 359 & 417. 1928; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, Résumé 106 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 961. 1971.

This variety is described by Silveira (1928) as "Vaginis ab initio glabris a specie typica differt" and is based on A. Silveira 845 from "In campis arenosis prope Itacambira", Minas Gerais, Brazil, collected in July, 1926, and deposited in the Silveira herbarium. Thus far it is known only from the original collection.

SYNGONANTHUS CURRALENSIS Moldenke, Phytologia 31: 487—489. 1975.

Bibliography: Moldenke, Phytologia 31: 386 & 487—489 (1975) and 34: 259. 1976; Anon., Biol. Abstr. 61: AC1.718. 1976.

Illustrations: Moldenke, Phytologia 31: 488. 1975.

Citations: BRAZIL: Bahia: Harley, Renvoize, Erskine, Brighton, & Pinheiro in Harley 16661 (Z—type, Z—drawings of type).

SYNGONANTHUS DEALBATUS Alv. Silv., Fl. Mont. 1: 385—386, pl. 245. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 385—386 & 417, pl. 245. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Worsdell, Ind. Lond. Suppl. 2:

426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Alph. List Cit. 2: 412 (1948) and 3: 935. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, Phytologia 4: 303. 1953; Moldenke, Résumé 106 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 961. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 245. 1928.

The type of this species was collected by Álvaro Adolpho da Silveira (no. 571) "In pratis siccis arenosisque prope Corrego da Pedra Pintada, in serra do Cabral", Minas Gerais, Brazil, in May, 1910, and is deposited in the Silveira herbarium. Silveira (1928) says of it "Species dealbata ob arcte appressos pilos, valde insignis et affinis perbene distincta". He refers to his illustration of it as "Tabula CCXLVI", but the plate itself is plainly labeled "CCXLV" and is so cited by Worsdell (1941). On page 417 of his work Silveira cites a no. "581" from the same mountains; if this is a second collection, a typographic error, or is meant to correct an error in the number given in the original description is not clear. The species is thus far known only from the original collection(s).

SYNGONANTHUS DEALBATUS var. MINOR Alv. Silv., Fl. Mont. 1: 386. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 386 & 417. 1928; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, Résumé 106 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 961. 1971.

This variety is based on A. Silveira 744 from "In campis arenosis prope Itacambira", Minas Gerais, Brazil, collected in July, 1926, and deposited in the Silveira herbarium. It is described as "Foliis (2—5 cm longis), pedunculis (usque 20 cm altis) minoribus ac glabrioribus, et capitulis etiam minoribus (7 mm latis) a specie typica differt". On page 417 of his work Silveira (1928) cites his no. "844" from the same locality and date; if this is a second collection, a typographic error, or a correction of a previous typographic error is not clear.

SYNGONANTHUS DECORUS Moldenke, Phytologia 32: 485—487, fig. 2. 1976.

Bibliography: Moldenke, Phytologia 32: 485—487, fig. 2 (1976), 34: 259 (1976), and 35: 320. 1977.

Illustrations: Moldenke, Phytologia 32: 486, fig. 2. 1976.

This plant has been encountered on sandy campos and the wet sandy margins of sandstone outcrops, flowering in April and May.

Material has been misidentified and distributed in some herbaria as S. anthemiflorus (Bong.) Ruhl.

Citations: BRAZIL: Goiás: Dawson 14631 (Z); Hatschbach 36804 (Z—type, Z—drawings of type).

SYNGONANTHUS DENSIFLORUS (Körn.) Ruhl. in Engl., Pflanzenreich 13: (4—30): 263—264. 1903.

Synonymy: Paepalanthus densiflorus Körn. in Mart., Fl. Bras. 3 (1): 450. 1863. Dupatya densiflora (Körn.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya densiflora Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Syngonanthus densiflorus Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 450—451 & 507. 1863; Benth. & Hook. f., Gen. Pl. 3 (2): 1023. 1883; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 401. 1894; Kuntze, Rev. Gen. Pl. 3 (2): 329. 1898; Malme, Bih. Svensk Vet. Akad. Handl. 27 (3), no. 11: 31. 1901; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 3, 246, 263—264, 289, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 41. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Erioc. 17, 29, 47, & 57. 1946; Moldenke, Alph. List Cit. 1: 223 (1946) and 2: 627. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 212. 1949; Moldenke, Phytologia 4: 303—304. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 106, 279, 324, & 491. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 401. 1960; Rennó, Levant. Herb. Inst. Agron. Minas 71. 1960; Moldenke, Résumé Suppl. 8: 2 (1964) and 12: 5 & 12. 1965; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 166, 167, 174, & 189. 1969; Anon., Biol. Abstr. 52 (19): B.A.S. I.C. S.248. 1971; Moldenke, Biol. Abstr. 52: 10547. 1971; Moldenke, Fifth Summ. 1: 173 & 479 (1971) and 2: 580, 636, & 961. 1971; Moldenke, Phytologia 21: 352 (1971), 23: 435 (1972), and 24: 499. 1972; Angely, Fl. Anal. & Fitogeogr. Est. S. Paulo, ed. 1, 6: 1161—1162, map 1782 [bis], & ind. 20 & 28. 1972; Hocking, Excerpt. Bot. A.21: 211. 1973; Moldenke, Biol. Abstr. 56: 1243. 1973; Moldenke, Phytologia 25: 120 & 230. 1973.

This species is based on Weddell 2132, 2141, & 2383 from near Salinas, Goiás, L. Riedel 2348 & s.n. and Lund s.n. [Villa Franca, July] from Minas Gerais, and G. Gardner 2966 from Piauí, Brazil. Macbride photographed the Riedel 2348 cotype in the Berlin herbarium as his type photograph number 10680. Ruhland (1903) cites, in addition, Glazion 22316 from Goiás and Lund s.n. from São Paulo. He cites the Riedel 2348 collection from São Paulo, not Minas Gerais.

Recent collectors describe this plant as an herb to 1.25 m. tall (to the tops of the inflorescence), the heads cream-color, gray, or gray-brown, and the flowers themselves white or creamy-white. They have found it growing in swamps, close to lakes, in cerrado seeps, on grassy or wet campos, in wet sandy soil, wet places in cerrado, and wet ground by streamlets, on palm islands in wet campos, and in swampy ground at the edge of "campo alagado" and gallery forest, at altitudes of 500—1150 meters, flowering in January, March, and May to August, and fruiting in March, May to August, and October. Ratter & Ramos encountered it in

"tussocky campos now barely dry but very wet in the rainy season"; Irwin and his associates found it "in wet campo between gallery forest and cerrado", "in dense stands of grasses and sedges in boggy depressions in campos", "in wet ground at gallery margin in an area of cerrado and gallery woods", and "locally common among grasses on wet grassy slopes". Hunt & Ramos report the "length of scapes very variable".

It should be noted here that the Malme (1901) reference in the bibliography above is sometimes cited as "1903" and the Angely (1972) work is sometimes cited as "1970", the erroneous titlepage date. Malme (1901) cites Malme 1456C from Mato Grosso and notes that the "*Capitula nondum bene evoluta*".

The Kuntze s.n. [Velasco, VII.92], distributed as S. densiflorus and so cited by me in my 1953 work, is now better regarded as representing var. glabrescens Moldenke.

Additional citations: BRAZIL: Distrito Federal: Duarte 10365 [Herb. Cadeira Bot. 14079] (Ld); Héringer 6782 (B); Irwin & Soderstrom 5232 (Ac, N, W—2759016); Murça Pires, Silva, & Souza 9506 (Z), 9591 (B); Sucre 798 (Ac). Goiás: Andrade 486 [Emmerich 478] (Bd—15507); M. A. Chase 11753 (Ml); Glaziou 22316 (W—1124172); Hatschbach 34247 (Ld); Irwin, Grear, Souza, & Reis dos Santos 13837 (Ld, N, W—2759059); Irwin, Maxwell, & Wasshausen 21414 (Ld, N, N); Irwin & Soderstrom 7647 (Ld, N); Macedo 1835 (S). Mato Grosso: Arlé 5 [Herb. Brad. 14702] (Lw); Goldsmith 63 (K); Harley 11553 (Ld); Hunt & Ramos 5658 (N), 5737 (N); Irwin, Grear, Souza, & Reis dos Santos 16408 (Ac, N, W—2759060); Philcox & Ferreira 4561 (K, N, S); Ratter & Ramos R.245 (Ld, N); Ratter, Santos, Souza, & Ferreira R.1593 (Ld, N); P. W. Richards R.476 (Ac, N). Minas Gerais: Irwin, Onishi, Fonsêca, Souza, Reis dos Santos, & Ramos 25757 (Ac, N, S); L. Riedel 2348 [Type Photo Coll. N. Y. Bot. Gard. new ser. 8844; Macbride photos 10680] (B—cotype, Mu—cotype, N—photo of cotype, N—photo of cotype, W—photo of cotype, Z—photo of cotype), s.n. [Franca] (Ut—399—cotype). Piauí: G. Gardner 2966 (W—936276). MOUNTED ILLUSTRATIONS: drawings by Körnicke (B).

SYNGONANTHUS DENSIFLORUS var. GLABRESCENS Moldenke, Phytologia 21: 352. 1971.

Synonymy: Syngonanthus densiflorus var. gabrescens Anon., Biol. Abstr. 52(19): B.A.S.I.C. S.248, sphalm. 1971.

Bibliography: Anon., Biol. Abstr. 52 (19): B.A.S.I.C. S.248. 1971; Moldenke, Biol. Abstr. 52: 10547. 1971; Moldenke, Fifth Summ. 1: 184 (1971) and 2: 961 & 968. 1971; Moldenke, Phytologia 21: 353 (1971) and 23: 435. 1972; Hocking, Excerpt. Bot. A. 21: 211. 1973.

This variety differs from the typical form of the species in having its leaves and sheaths glabrous or subglabrate. It is based on Irwin, Souza, Grear, & Reis dos Santos 17022 from peri-

odically flooded campo, at 400 meters altitude, about 30 km. south of Xavantina, Mato Grosso, Brazil, collected on June 12, 1966, and deposited in my personal herbarium. The collectors note that the inflorescences are to 1 m. tall, the heads gray-brown, and that the plant is locally frequent. It has also been encountered in open moist sandy ground near the edge of cerrado, at altitudes of 200—400 meters, flowering in June and July, and fruiting in July. The Kuntze collection cited below was previously inaccurately cited by me (1953) as the typical form of the species.

Citations: BRAZIL: Mato Grosso: Argent in Richards 6471 (Ld, N); Irwin, Souza, Grear, & Reis dos Santos 17022 (N—isotype, Z—type). BOLIVIA: Santa Cruz: Kuntze s.n. [Ost Velasco, VII.92] (N, W—701891).

SYNGONANTHUS DENSIFLORUS var. GLABRIFOLIUS Moldenke, Phytologia 25: 120. 1973.

Bibliography: Moldenke, Biol. Abstr. 56: 1243. 1973; Moldenke, Phytologia 25: 120 & 230. 1973.

This variety differs from the typical form of the species in having only its leaves always glabrous on both surfaces. It is based on Irwin, Anderson, & Lee 34606 from in a sedge meadow (brejo) at 1000 m. altitude in an area of "campo sujo", sedge meadow, and adjacent cerrado in the Serra dos Pireneus about 21 km. east of Pirenópolis, on the Planalto do Brasil, Goiás, Brazil, collected on January 19, 1972, and deposited in my personal herbarium. Thus far it is known only from the original collection.

Citations: BRAZIL: Goiás: Irwin, Anderson, & Lee 34606 (N—isotype, Z—type).

SYNGONANTHUS DENSIFOLIUS Alv. Silv., Fl. Mont. 1: 319—320, pl. 203. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 319—320 & 417, pl. 203. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke, Résumé 106 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 961. 1971; Moldenke, Phytologia 23: 418 (1972), 24: 499 (1972), and 25: 230. 1973; Anon., Biol. Abstr. 55 (9): B.A.S. I.C. S.250. 1973; Hocking, Excerpt. Bot. A.23: 292. 1974; Moldenke, Phytologia 29: 203 (1974) and 35: 348. 1977.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 203. 1928.

This species is based on A. Silveira 545 from "In campis arenosis in Serra do Cipó", Minas Gerais, Brazil, collected in April, 1909, and deposited in the Silveira herbarium. It bears great superficial similarity to S. anthemiflorus (Bong.) Ruhl., S. flaviceps Alv. Silv., and S. canaliculatus Alv. Silv. Silveira (1928) comments that the species is "Ab affinibus, S. canaliculato Alv. Silv. excepto, praecipue distinguitur bracteis involucrentibus a-

cutis dorsoque pubescentibus. A S. canaliculato forma ac colore bractearum involucrentium, antheris albis et aliis characteribus differt. A S. anthemidifloro (Bong.) Ruhl. ob stamina exserta et formam pilositatem perigonii praecipue distinguitur. A S. densifolio Alv. Silv. forma bractearum involucrentium et colore perigonii floris masculi praecipue differt." What the last sentence is supposed to mean is not clear — possibly Silveira meant to contrast it with S. flaviceps Alv. Silv., a species to which he states elsewhere that S. densifolius is related.

Irwin and his associates found S. densifolius in wet sand adjacent to campo with cerrado on outcrops, at 1000 m. altitude, flowering and fruiting in March. They describe the heads as gray. It has been misidentified and distributed in some herbaria as var. pilosior Alv. Silv.

Citations: BRAZIL: Goiás: Irwin, Reis dos Santos, Souza, & Fonsêca 24648 (Ac, N).

SYNGONANTHUS DENSIFOLIUS var. MAJUS Moldenke, Phytologia 24: 499. 1972.

Bibliography: Moldenke, Phytologia 24: 499. 1972; Anon., Biol. Abstr. 55 (9): B.A.S.I.C. S.250. 1973; Moldenke, Phytologia 25: 230 (1973) and 29: 203. 1974; Hocking, Excerpt. Bot. A.23: 292. 1974.

This variety differs from the typical form of the species in having its basal leaves mostly to 6 cm. long and the peduncles 12—17 cm. long. It is based on Irwin, Harley, & Smith 32982 from a campo in an area of campo with cerrado on outcrops, about 25 km. north of Alto de Paraíso, altitude 2150 m., in the Chapada dos Videiros, Goiás, Brazil, collected on March 22, 1971, and deposited in my personal herbarium. The collectors describe it as a rosette herb, the inflorescence up to 20 cm. tall, and the heads white. The Irwin, Harley, & Onishi 29319, distributed as this variety, is actually Eriocaulon ligulatum (Vell.) L. B. Sm.

Citations: BRAZIL: Goiás: Irwin, Harley, & Smith 32982 (Z—type).

SYNGONANTHUS DENSIFOLIUS var. PILOSIOR Alv. Silv., Fl. Mont. 1: 320—321. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 320—321 & 417. 1928; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke in Dawson, Los Angeles Co. Mus. Contrib. Sci. 7: 5 & 6. 1957; Moldenke, Résumé 106 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 961. 1971.

Illustrations: Moldenke in Dawson, Los Angeles Co. Mus. Contrib. Sci. 7: 5. 1957.

This variety differs from the typical form of the species in "Folia ramea utrinque pilosa et vaginas molliter et glanduloso pubescentes". It is based on A. Silveira 663 from "In campis arenosis prope Diamantina", Minas Gerais, Brazil, collected in

April, 1908, and deposited in the Silveira herbarium. Hatschbach encountered it on sandy campos, at 1200 m. altitude, flowering and fruiting in May.

The Irwin, Reis dos Santos, Souza, & Fonsêca 24648, identified as var. pilosior and so distributed in some herbaria, actually represents the typical form of S. densifolius Alv. Silv.

Citations: BRAZIL: Goiás: E. Y. Dawson 14639 (Z); Hatschbach 36814 (Ld). Minas Gerais: Hatschbach 27407 (Ld, S).

SYNGONANTHUS DENSUS (Körn.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 253. 1903.

Synonymy: Paepalanthus densus Körn. in Mart., Fl. Bras. 3 (1): 464. 1863. Dupatya densa (Körn.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya densa Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Syngonanthus densus Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 299, 462, 464-465, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 244, 253, 289, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Alv. Silv., Fl. Mont. 1: 417. 1928; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Erioc. 17, 29, 47, & 57. 1946; Moldenke, Phytologia 2: 492. 1948; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke, Phytologia 3: 277 (1950) and 4: 304. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 106, 279, 324, & 491. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 401. 1960; Moldenke, Résumé Suppl. 12: 12. 1965; Moldenke, Fifth Summ. 1: 173 & 479 (1971) and 2: 580, 636, & 961. 1971.

This species is based on G. Gardner 4385 from somewhere in Goiás and Weddell 2127 from sandy marshy places near Salinas, Goiás, Brazil, deposited in the herbarium of the Botanischer Garten und Museum in Berlin where Macbride photographed the Gardner collection as his type photograph number 10681. Ruhland (1903) cites only these two collections and comments that the "Species cum S. gracili valde affinis, sed robustior quam illa, foliorum indumento et forma anguste spathulata insignis". Silveira (1928) cites A. Silveira 612 from Piauí.

Recent collectors describe S. densus as an acaulescent tufted herb, 6-8 cm. tall, "green at base, stems fertile, brown-white at tip", with cream-colored heads, and have encountered it on exposed white sand, "on terra firme of open campina", "in campina caatinga", "in white sand campinas", and in wet sand by streams in areas of rocky hillsides with wet sandy meadows in depressions, the area cut by streams, at an altitude of 1180 meters, flowering and fruiting in March, April, June, and September.

Material has been misidentified and distributed in some herbar-

ia as S. kuhlmannii Moldenke.

Additional citations: BRAZIL: Amazônas: Ongley & Ramos P.21771 (Ld); Prance, Berg, Bisby, Steward, Monteiro, & Ramos 17932 (Ld); Prance, Coêlho, Harley, Kubitzki, Maas, Sastra, & Smith 11688 (Ld, N); Prance, Coêlho, & Monteiro 11843 (Ac, N); Prance, Pena, Forero, Ramos, & Monteiro 4790 (Ld, N); Prance, Philcox, Rodrigues, Ramos, & Farias 5114 (N, S, Z); Prance, Ramos, Farias, & Philcox 4834 (Ac, N, N, S). Goiás: W. R. Anderson 8220 (Ld, N); G. Gardner 4385 [Macbride photos 10681] (B—cotype, M—cotype, N—cotype, N—photo of cotype, W—936282—cotype, W—1066875—cotype, W—photo of cotype). Pará: Campbell, Ongley, Ramos, Monteiro, & Nelson P.22552 (Ld). MOUNTED ILLUSTRATIONS: notes & drawings by Körncke (B).

SYNGONANTHUS DENSUS var. PUMILUS Moldenke, Phytologia 3: 277. 1950.

Bibliography: Moldenke, Phytologia 3: 277 (1950) and 4: 304. 1953; Moldenke, Résumé 107 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 961. 1971.

This variety differs from the typical form of the species in having leaves only to 1 cm. long and peduncles to 5.5 cm. long. It is based on Lützelburg 20568, in part, from Passarão on the Rio Araricuera, Amazônas, Brazil, deposited in the Rio de Janeiro herbarium. Thus far the variety is known only from the original collection.

SYNGONANTHUS DIAMANTINENSIS Alv. Silv., Fl. Mont. 1: 315—317, pl. 200. 1928.

Synonymy: Syngonanthus diamantinus A. Silveira apud Worsdell, Ind. Lond. Suppl. 2: 426. 1941.

Bibliography: Alv. Silv., Fl. Mont. 1: 315—317 & 417, pl. 200. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac. [ed. 2], 91 & 213. 1949; Moldenke, Résumé 107 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 961. 1971; Moldenke, Phytologia 34: 277. 1976.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 200. 1928.

This species is based on A. Silveira 638 from "In campis siccis arenosis prope Diamantina", Minas Gerais, Brazil, collected in September, 1916, and deposited in the Silveira herbarium. Silveira (1928) notes that the "Species ob varios caracteres distinctissima". On page 417 of his work he cites "Baraunas" as the type locality. Thus far the species is known only from the type collection.

SYNGONANTHUS DROUETII L. B. Sm., Contrib. Gray Herb., ser. 2, 117: 34—35, pl. 2, fig. 41—43. 1937.

Synonymy: Paepalanthus drouetii L. B. Sm. ex Moldenke, Résumé

Suppl. 3: 34, in syn. 1962.

Bibliography: L. B. Sm., Contrib. Gray Herb., ser. 2, 117: 34-35 & 43, pl. 2, fig. 41-43. 1937; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Hill & Salisb., Ind. Kew. Suppl. 10: 224. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke, Phytologia 4: 304. 1953; Moldenke, Résumé 107 & 491. 1959; Moldenke, Résumé Suppl. 3: 34. 1962; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 961. 1971; Moldenke, Phytologia 31: 386. 1975.

Illustrations: L. B. Sm., Contrib. Gray Herb., ser. 2, 117: pl. 2, fig. 41-43. 1937.

This species is based on Drouet 2112 from sandy banks and flats 4 km. south of Vigia, Pará, Brazil, and deposited in the Gray Herbarium of Harvard University. Smith (1937) comments that "The strikingly large inner bracts of its involucre distinguish Syngonanthus Drouetii from such near relatives as S. simplex and S. gracilis. In fact its habit much more closely resembles that of S. niveus in the Section Eulepis than it does that of any species in its own section." I would add that it is most disconcertingly similar in habit and general appearance to S. tenuis (H.B.K.) Ruhl., with which taxon I united it in a previous publication (1962), but the latter does not have the capitate-glandular hairs on the uppermost part of its peduncles.

Recent collectors describe S. drouetii as an herb, with white flower-heads, and have found it growing in wet sand and on sandy floodplains with scattered shrubs and small trees, partly inundated by runoff water in season and on wet campos in areas of sandy cerrado and adjacent marshy campo near streams, at altitudes of 140-200 meters, flowering and fruiting in February. Material has been misidentified and distributed in some herbaria as S. tenuis (H.B.K.) Ruhl. and as Paepalanthus sp.

Citations: BRAZIL: Amazonas: Murça Pires, Cavalcante, Magnago, & Silva 14452 [Murça Pires & al. 14434] (W-2740220), Pará: W. R. Anderson 10683 (Id, N), 10929 (N, Z); Drouet 2112 (Mi-isotype, Z-isotype).

SYNGONANTHUS DUIDAE Moldenke, Phytologia 2: 352 & 381, nom. nud. 1947; Fieldiana Bot. 28: 127-128. 1951.

Bibliography: Moldenke, Phytologia 2: 352 & 381. 1947; Moldenke, Alph. List Cit. 3: 975. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 65 & 213. 1949; Moldenke, Fieldiana Bot. 28: 127-128. 1951; Moldenke, Phytologia 4: 304. 1953; J. A. Steyermark, Fieldiana Bot. 28: 1158. 1957; Moldenke, Résumé 73 & 491. 1959; G. Taylor, Ind. Kew. Suppl. 12: 138. 1959; J. A. Steyermark, Act. Bot. Venez. 1: 247. 1966; Moldenke, Fifth Summ. 1: 127 (1971) and 2: 961. 1971.

This species is based on J. A. Steyermark 58199 from around a small stream on dry rocky slopes, summit of Mount Duida, at 1700-1800 m. altitude, Brocchinia Hills, Amazonas, Venezuela, collected on September 1, 1944, deposited at the New York Botanical Garden.

Thus far the species is known only from the original collection.

SYNGONANTHUS EBURNEUS Körn.) Ruhl. in Engl., Pflanzenreich 13 (3-40): 278. 1903.

Synonymy: Paepalanthus eburneus Körn. in Mart., Fl. Bras. 3 (1): 430. 1863. Dupatya eburnea (Körn.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya eburnea Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Syngonanthus eburneus Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 430—431 & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 276, 278, 289, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Erioc. 17, 29, 47, & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 107, 280, 324, & 491. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 401. 1960; Moldenke, Fifth Summ. 1: 173 & 480 (1971) and 2: 581 & 962. 1971; Moldenke, Phytologia 34: 259. 1976.

This species is based on Blanchet 2441 from Bahia, Brazil, deposited in the herbarium of the Botanisches Museum in Berlin. An isotype in the Delessert Herbarium at Geneva was photographed there by Macbride as his type photograph number 25166. Ruhland (1903) cites only the original collection. More recent collectors describe the species as a plant with small rosettes of dark-green leaves and the flower-heads white or "off-white". They have found it growing in restingas by the sea, at sealevel, flowering and fruiting in March and also fruiting in November. Hatschbach encountered it "nas pedras da base do salto". Belém & Pinheiro assert that the plants are only "4 cm. tall", but actually their own specimens have peduncles to 18 cm. tall.

Ruhland's key (1903) to this species and what he regarded as its closest relatives is well worth repeating here:

1. Pedunculi stricti.

2. Folia densissima.

3. Pedunculi glabri; folia supra albido-pubescentia, ibique leviter canaliculata.....S. eburneus.

3a. Pedunculi appresso-pubescentes.

4. Vaginae oblique fissae; folia supra canaliculato-concava, glabra, subtus leviter convexa et densissimo lamigine alto-tomentosa.....S. cipoënsis.

4a. Vaginae transverse truncatae; folia margine pubescente excepto glabra, plana.....S. caespitosus.

2a. Folia pauca, elongata; pedunculi juventute levissime puberuli, cito glabri.....S. circinnatus.

1a. Pedunculi flexuosi; vaginae late costatae.....S. imbricatus.

Citations: BRAZIL: Bahia: Belém & Pinheiro 2441 (N); Blanchet 2441 [Macbride photos 25166] (N—photo of isotype, N—photo of isotype, W—photo of isotype); Harley, Renvoize, Erskine, Brighton, & Pinheiro in Harley 17149 (Z). Mato Grosso: Hatschbach 37620 (Ld).

SYNGONANTHUS EGLERI Moldenke, Phytologia 7: 121—122. 1960.

Bibliography: Moldenke, Biol. Abstr. 35: 2177. 1960; Moldenke, Phytologia 7: 121—122. 1960; Moldenke, Résumé Suppl. 2: 5 & 15. 1960; Hocking, Excerpt. Bot. A.4: 593. 1962; G. Taylor, Ind. Kew. Suppl. 13: 132. 1966; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 962. 1971.

Citations: BRAZIL: Pará: Egler & Raimundo s.n. [W. A. Egler 818; Herb. Mus. Goeldi 23634] (Bd—12291—isotype, Z—type).

SYNGONANTHUS ELEGANS (Bong.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 275. 1903.

Synonymy: Eriocaulon elegans Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 635. 1831. Paepalanthus elegans (Bong.) Kunth, Enum. Pl. 3: 527. 1841. Paepalanthus elegans Kunth apud Körn. in Mart., Fl. Bras. 3 (1): 435. 1863. Paepalanthus elegans var. α Körn. in Mart., Fl. Bras. 3 (1): 435. 1863. Dupatya elegans (Bong.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya elegans Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Syngonanthus elegans (Körn.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 293. 1903. Syngonanthus elegans Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908. Syngonanthus elegans Kunth ex Moldenke, Phytologia 4: 304, in syn. 1953. Paepalanthus elegans Mart. ex Moldenke, Résumé 324, in syn. 1959. Syngonanthus elegans var. rufescens Ruhl. ex Moldenke, Résumé 351, in syn. 1959. Syngonanthus elegans var. superbus Glaz. ex Moldenke, Résumé Suppl. 12: 12, in syn. 1965.

Additional bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 635. 1831; Bong., Ess. Monog. Erioc. 35 (1831) & 62—63, pl. 13. 1832; Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 2 (3): 225—226, pl. 13. 1832; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 527, 579, 613, & 624. 1841; D. Dietr., Syn. Pl. 5: 262. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 281 & 333. 1855; Körn. in Mart., Fl. Bras. 3 (1): 285, 309, 435, 437, & 507. 1863; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 877 & 878 (1893) and imp. 1, 2: 401. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 271, 274, 275, 285, 290, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Alv. Silv., Fl. Mont. 1: 417. 1928; Stapf, Ind. Lond. 3: 90. 1930; E. J. Alexander, Journ. N. Y. Bot. Gard. 36: 221. 1935; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Abbiatti, Rev. Mus. La Plata Bot., ser. 2, 6: 312, 319, 322, & 336—340, fig. 9 & 10. 1946; Jacks. in

Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 877 & 878 (1947) and imp. 2, 2: 401. 1946; Moldenke, Known Geogr. Distrib. Erioc. 17, 29, 34, 47, & 57. 1946; Moldenke, Phytologia 2: 377, 380, & 381. 1947; Abbiatti, Notas Mus. La Plata Bot. 13: 311. 1948; Moldenke, Alph. List Cit. 3: 731. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke, Phytologia 4: 304 & 311-312. 1953; Hocking, Dict. Terms Pharmacog. 284. 1955; Mendes Magalhães, Anais V Reun. Anual Soc. Bot. Bras. 276-277, 280-281, 293, & 302, fig. 15. 1956; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 107, 222, 280, 287, 324, 351, & 491. 1959; Moldenke, Résumé Suppl. 1: 20. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 877 & 878 (1960) and imp. 3, 2: 401. 1960; Rennó, Levant. Herb. Inst. Agron. Minas 71. 1960; Moldenke, Résumé Suppl. 12: 12. 1965; Tomlinson in C. R. Metcalfe, Anat. Monocot. 3: 149, 160-163, 173, 174, 186, 187, & 189. 1969; Forstner, Verh. Zool.-bot. Ges. Wien 112: 89-91. 1972; Moldenke, Phytologia 26: 247. 1973; Wedge, Pl. Names, ed. 1, 18 (1973) and ed. 2, 24 & 26. 1974; Widder, Excerpt. Bot. A.24: 329. 1974; Anon., Biol. Abstr. 61: ACl.718. 1976; Moldenke, Phytologia 33: 25 (1976) and 35: 303, 337, 342, & 349. 1977.

Illustrations: Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 2 (3): [Ess. Monog. Erioc.] pl. 13. 1832; Abbiatti, Rev. Mus. La Plata Bot., ser. 2, 6: [337] & 338, fig. 9 & 10. 1946; Mendes Magalhães, Anais V Reun. Anual Soc. Bot. Bras. fig. 15. 1956; Forstner, Verh. Zool.-bot. Ges. Wien 112: 90. 1972.

This species is based on L. Riedel 1035 from sandy rather moist places in the Serra da Lapa, Minas Gerais, Brazil, flowering in November, and probably deposited in the Leningrad herbarium. This collection is also the type of Paepalanthus elegans var. α Körn.; var. β is a synonym of var. elanatus Ruhl. It is interesting to note that Kunth (1841) cites the type collection as from "In arenosis siccis Serra da Lapa", but Bongard (1831) says "Habitat in arenosis subhumidis Serra da Lapa". The type of var. superbus is Glaziou 20012, also from Minas Gerais.

The dried and dyed inflorescences of this species are exported from Brazil in large quantities and are sold in American and European markets for use in dried flower arrangements under the names, "Brazilian everlasting", "star-flower", "sky-rocket", and "Glizie"; in Brazil they are called "flore de Diamantina", "sempreviva", "sempreviva de Diamantina", "sempre-viva mini-sala", "sempre-viva pé liso", "sempre-viva pé-de-ouro", or "sempervarium". They became common in Vienna flower-shops in 1969.

Recently Rhynchospora globosa is appearing in the trade and is treated there very much like S. elegans with a remarkable superficial resemblance to it. The Syngonanthus material is marketed as "dyed-dry-bouquet" material by Associated Marketing Products, Broomfield, Colorado, and is alleged (correctly) to come from Minas Gerais. It takes vegetable dyes well and is sold in many colors. In Canada it was sold (in 1969) at the rate of 50 cents for 100 stems in novelty flower-shops in Ottawa supplied "by a wholesaler

in Montreal".

Ruhland (1903) cites from Minas Gerais Glaziou 20012, Riedel 1035, Schwacke 8502, and Sena s.n. [Herb. Schwacke 14552]. Silveira (1928) cites A. Silveira 449 from the Serra do Cipó, also in Minas Gerais, collected in 1905.

Recent collectors have found S. elegans growing on sandy campos and in sand and fine gravel on open summits, at altitudes of 400—1300 meters, flowering and fruiting in March, April, August, and December, flowering also in November. They refer to the plant as a perennial tufted or caespitose herb, 20—50 cm. tall, the peduncles to 50 cm. long, and the flower-heads white. It bears close habitat similarity with S. barbatus Alv. Silv., S. candidus Alv. Silv., S. elegantulus Ruhl., and S. niveus (Bong.) Ruhl.

Herbarium material of S. elegans has been misidentified and distributed in some herbaria as S. elegantulus and S. niveus. On the other hand, the M. A. Chase 10369, distributed as S. elegans, is actually var. elanatus Ruhl., while Mendes Magalhães 6023 [Herb. Jard. Bot. Belo Horiz. 48280] is S. elegantulus Ruhl.

Additional citations: BRAZIL: Minas Gerais: M. A. Chase 10355 (Mi, W—1495687); Glaziou 20012 (W—1124167); Hatschbach 30210 (Ld); Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 28211 (Ld, N, W—2759022); A. Lutz 1580 [Herb. Lutz 1580] (Le); Maguire, Mendes Magalhães, & Maguire 49135 (N); Mexia 5735 (Ca—509145, Go, Mi, Mu, Ut—50241A, W—1571899); L. Riedel 1035 (B—isotype, M—isotype, Ut—400—isotype); R. E. Russell s.n. [December 1969] (Bl—243439); J. B. Silva 568 [Herb. Set. Lag. 705] (Ba), 584 [Herb. Set. Lag. 721] (Ac, Ba), 594 [Herb. Set. Lag. 731] (Ba, Ld); Vauthier 63 (B, Mi); L. O. Williams 8145 (W—1933086); Williams & Assis 6911 (Ca—744434, N, Vi, W—1932844). COMMERCIAL-
LY MARKETED: Austria: Forstner s.n. [Vienna, Feb. 6, 1970] (Ac). Brazil: Moldenke & Moldenke 19938 (Cb, Fy, Hk, Le, Sm, Ss). Canada: Dore s.n. [18 Nov. 1969] (Ac). MOUNTED ILLUSTRATIONS: Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 2 (3): pl. 13. 1832 (N, Z); drawings by Körnicker (B).

SYNGONANTHUS ELEGANS var. CANESCENS Alv. Silv., Fl. Mont. 1: 365. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 365 & 417. 1928; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke, Résumé 107 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 962. 1971.

This variety differs from the typical form of the species in having the leaves densely covered with white spreading-erect hairs and the sheaths conspicuously longer than the leaves.

The type of the variety is A. Silveira 650, collected "In cam-

pis arenosis in serra do Cipó", Minas Gerais, Brazil, in April, 1918, and deposited in the Silveira herbarium. On page 417 of his work (1928) Silveira gives "1915" as the date of collection. Thus far the variety is known only from the original collection.

SYNGONANTHUS ELEGANS var. ELANATUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 275. 1903.

Synonymy: Paepalanthus elegans var. ♂ Körn. in Mart., Fl. Bras. 3 (1): 435. 1863. Syngonanthus elegans var. elanata Ruhl. ex Alv. Silv., Fl. Mont. 1: 417. 1928.

Bibliography: Körn. in Mart., Fl. Bras. 3 (1): 435. 1863; Ruhl. in Engl., Pflanzenreich 13 (4-30): 275 & 290. 1903; Alv. Silv., Fl. Mont. 1: 417. 1928; Moldenke, Known Geogr. Distrib. Erioc. 17, 47, & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke, Phytologia 4: 312. 1953; Moldenke, Résumé 107, 324, 351, & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 581, 636, & 962. 1971.

Ruhland's original description of this taxon is "Differt a typo foliis basi non rufescenti-lanatis ibique glabriusculis vel albo-puberulis". He based it on G. Gardner 5283 and Glaziov 20013 from Minas Gerais, Brazil.

Recent collectors refer to this plant as caespitose, the inflorescence to 15 cm. tall [but on one specimen seen by me of the Irwin & al. 22019 collection whose label is so inscribed the inflorescences are at least 34 cm. tall!], and the heads white or cream-color. They have found it growing at 1050-1700 m. altitude, flowering in December and January and in fruit in January, and record the vernacular name, "sempre-viva" or "sempreviva". Mrs. Chase encountered the plant "in moist sand under overhanging rock on open rocky slope", while Irwin and his associates report it from "wet campo in area of sandy and gravelly campos and cerrado on outcrops" and "campo in area of grassy meadows and adjacent sandy campos". Silveira (1928) cites A. Silveira 649 from the Serra do Cipó, collected in 1909.

Material has been misidentified and distributed in some herbaria as typical S. elegans (Bong.) Ruhl. as well as S. elegantulus Ruhl., and S. niveus (Bong.) Ruhl. and even as "Paepalanthus sp. nov." On the other hand, the Hatschbach & Ahumada 31286 and Irwin, Harley, & Onishi 29129, distributed as S. elegans var. elanatus, are actually S. elegantulus Ruhl., while G. Gardner 5282 and L. Monteiro de Sousa 39 [Herb. Cent. Pesq. Florest. 6209] are S. niveus (Bong.) Ruhl.

Additional citations: BRAZIL: Minas Gerais: M. A. Chase 10369 (W-1495694); A. P. Duarte 7569 [Herb. Brad. 27317] (Bd-27317, N); G. Gardner 5283 (N-cotype); Glaziov 16395 (N, N-photo), 16398 (N); Irwin, Onishi, Fonsêca, Souza, Reis dos Santos, & Ramos 25459 (N); Irwin, Reis dos Santos, Souza, & Fonsêca 22019 (N); Windisch & Ghillány 214 [Herb. Brad. 61220] (Bd, Ja-61220, (Ld)).

SYNGONANTHUS ELEGANTULUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 273--274. 1902.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 271, 273--274, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Mem. Inst. Oswaldo Cruz 7: 31. 1915; Moldenke, Known Geogr. Distrib. Erioc. 17 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke, Phytologia 4: 312. 1953; Mendes Magalhães, Anais V Reun. Anual Soc. Bot. Bras. 293. 1956; Moldenke, Résumé 107 & 491. 1959; Moldenke, Résumé Suppl. 12: 4. 1965; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 962. 1971; Angely, Fl. Anal. & Fitogeogr. Est. S. Paulo, ed. 1, 1162 & ind. 28. 1972; Moldenke, Phytologia 35: 349. 1977.

This species was based by Ruhland (1903) on four collections: Glaziou 16396, 17839, & 17840 from dry campos "nahe dem Gipfel der Serra de São João d'El Rei", Minas Gerais, and Schwacke 12108 from sandy places in the same locality, altitude 980 m., where it is said to be very abundant, collected in December, 1895, all deposited in the Berlin herbarium.

Recent collectors describe this plant as caespitose, the inflorescences to 15 cm. tall, and the heads white, and have found it growing in sandy soil among rocks, in wet places, and in wet, flat, sandy places with sparse grass cover. Irwin and his associates found it in campo "In an area of grassy meadows and adjacent sandy campo" and "in sand beneath overhanging rocks on a sandstone summit with soil-filled cracks and depressions and adjacent precipices and a steep valley". Mendes Magalhães encountered it "in sandy soil with quartz fragments with carpet of herbs and sparse shrubs"; Hatschbach & Ahumada found it "de solo arenoso junto as rochas do alto de morro". Ascensão comments that it is a "planta herbácea de pequeno porte, flores brancas, folhas tenras e pequenas", while Occhioni found it in a "restinga parte alagada". It has been found growing at altitudes of 980--1950 m., flowering from December to February, April, June, August, and September, and fruiting in January, February, and August.

Ruhland (1903) comments that the "Species vaginis rutilantibus farinaceo-puberulis insignis, *S. eleganti* proxima, sed jam pr. c. statura humiliore, indumento persistentiore, foliis basi non lanatis ab illo differt". It certainly seems closely related also to *S. candidus* Alv. Silv. and *S. niveus* (Bong.) Ruhl.

It is worth noting here that the Angely (1972) publication referred to in the bibliography above is often cited as "1970", the title-page date, which is erroneous.

Material of this species has been misidentified and distributed in some herbaria as *S. elegans* (Bong.) Ruhl., *S. elegans* var. *elanatus* Ruhl., *S. niveus* (Bong.) Ruhl., *S. pauper* Ruhl., *S. tenuis* (H.B.K.) Ruhl., *Paepalanthus fischerianus* Körn., and *P. niveus* Kunth. On the other hand, the Glaziou 16398 and Irwin, Onishi, Fonsêca, Souza, Reis dos Santos, & Ramos 25459, distributed as *S. elegantulus*, are actually *S. elegans* var. *elanatus* Ruhl.,

while Mendes Magalhães 6022 [Herb. Jard. Bot. Belo Horiz. 48279] is S. niveus (Bong.) Ruhl.

Additional citations: BRAZIL: Guanabara: Ascensão s.n. [Herb. Fac. Nac. Farmac. 7992] (Ld); Occhioni 2266 [Herb. Fac. Nac. Farmac 7969] (Ld). Minas Gerais: Emygdio, Duarte, Becker, & Silva Santos 3554 (N); Glaziou 16396 [Macbride photos 10682] (N—photo of cotype, W—photo of cotype), 17839 (B—cotype), 17840 (B—cotype), 17841 (W—1124157); Hatschbach & Ahumada 31286 (Ld, N, W—2706691); Irwin, Harley, & Onishi 29129 (Ld, N); Irwin, Reis dos Santos, Souza, & Fonsêca 22019 (N, Z); A. Lutz 135 (Ja); Magalhães Gomes 66 [Herb. Jard. Bot. Belo Horiz. 26610, in part] (N); Mendes Magalhães 6023 [Herb. Jard. Bot. Belo Horiz. 48280] (Ld); E. Pereira 3157 [Pabst 3992; Herb. Brad. 3833] (Ld, Z); Segadas-Vianna 6006 (Ja); Schultes & López 10308 (N); Souza Araújo 43 [Herb. Lutz 2107] (Ja). São Paulo: Glaziou 15549 (W—1123532); Regnell III.1265 [3/1857] (W—200744).

SYNGONANTHUS ENSIFOLIUS Alv. Silv., Fl. Mont. 1: 383—385, pl. 244. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 383—385 & 417, pl. 244. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 18 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke, Résumé 107 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 962. 1971; Moldenke, Phytologia 35: 337. 1977.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 244. 1928.

This species is based on A. Silveira 580 from "In campis arenosis prope Bandeirinhas, in Serra do Cipó", Minas Gerais, Brazil, collected in April, 1909, and deposited in the Silveira herbarium. Silveira (1928) notes that the "Species propter folia ensiformia dense rosulata valde insignis". It should be noted that in his text Silveira refers to "Tabula CCXLV" as illustrating this species, but the plate that actually does so is labeled "TABULA CCXLIV" — plate 245 depicts S. dealbatus Alv. Silv.

Thus far, S. ensifolius is known only from the original collection.

SYNGONANTHUS ERECTIFOLIUS Alv. Silv., Fl. Mont. 1: 365—366, pl. 231. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 365—366 & 417, pl. 231. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; A. W. Hill, Ind. Kew, Suppl. 9: 271. 1938; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 18 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke, Résumé 107 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 962. 1971; Moldenke, Phytologia 35: 335. 1977

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 231. 1928.

This species is based on A. Silveira 666 from "In campis arenosis ad Pico do Itambé", Minas Gerais, Brazil, collected in April, 1918, and deposited in the Silveira herbarium. On page 417 of his work (1928) Silveira gives "Diamantina" as the type locality. It should also be noted that in his text he refers to plate 232 as illustrating this species, while the plate that actually does so is labeled "CCXXXI" — plate 232 illustrates S. venustus Alv. Silv. He comments that S. erectifolius "A. S. venusto Alv. Silv. foliis 5-nervis obtusissimisque praecipue differt."

SYNGONANTHUS ERIOPUS Alv. Silv., Fl. Mont. 1: 362—363, pl. 229. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 362—363 & 417, pl. 229. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 18 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke, Résumé 107 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 962. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 229. 1928.

This species is based on A. Silveira 667 from "In campis arenosis prope Barauna", Minas Gerais, Brazil, collected in April, 1918, and deposited in the Silveira herbarium. In his text Silveira (1928) refers to "Tabula CCXXX" as illustrating this species, but the plate which does so is labeled "TABULA CCXXIX" — plate 230 actually represents S. arthrotrichus Alv. Silv. On page 417 he cites "Baraunas" as the type locality. Thus far the species is known only from the original collection.

SYNGONANTHUS ERIOPUS var. APPRESSUS Alv. Silv., Fl. Mont. 1: 363 [as "appressa"]. 1928.

Synonymy: Syngonanthus eriopus var. appressa Alv. Silv., Fl. Mont. 1: 363. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 363 & 417. 1928; Moldenke, Known Geogr. Distrib. Erioc. 18 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke, Résumé 107, 351, & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 636 & 962. 1971.

This variety "Differt pedunculis appresso-pubescentibus" from the typical form of the species and is based on A. Silveira 668 from "In campis prope Diamantina", Minas Gerais, Brazil, collected in April, 1918, and deposited in the Silveira herbarium. Silveira (1928) comments that it "A. S. arthrotricho Alv. Silv. indumento pedunculorum, foliis multo longioribus et ejus basi longe ciliata praecipue differt". Thus far it is known only from the original collection.

SYNGONANTHUS EUSCHEMUS Ruhl. in Engl., Pflanzenreich 13 (4-30): 274. 1903.

Synonymy: Paepalanthus euschemus Ruhl. ex Moldenke, Résumé Suppl. 1: 20, in syn. 1959.

Bibliography: Ruhl. in Engl., Pflanzenreich 13 (4-30): 3, 271, 274, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 41. 1930; Moldenke, Known Geogr. Distrib. Erioc. 18 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke, Phytologia 4: 312. 1953; Moldenke, Résumé 107 & 491. 1959; Moldenke, Résumé Suppl. 1: 20. 1959; Moldenke, Phytologia 20: 306. 1970; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 582 & 962. 1971; Moldenke, Phytologia 26: 483 (1973), 33: 39 (1976), and 35: 24. 1976.

This species is based on Glaziou 22300 and 22301 from "zwischen Rio Torto und Ponte de Paranana, auf trockenen Campos...blühend im Mai und November", Goiás, Brazil, deposited in the herbarium of the Botanisches Museum in Berlin where the former was photographed by Macbride as his type photograph number 10683. It should be noted that Ruhland (1903) cites only these two cotype collections — he does not cite Glaziou 22303, annotated by him as S. euschemus in the Berlin herbarium, but which (at least as to the Brussels specimen) is Paepalanthus albo-villosus Alv. Silv.

Recent collectors describe S. euschemus as an herb having inflorescences to 20 cm. tall and white flower-heads and have found it growing in "campo and cerrado" and in "campo limpo on sandy soil wet in some places", at an altitude of 1250 m., flowering from March to May and in November. The Irwin, Grear, Souza, & Reis dos Santos 13298, cited below, is a mixture with Paepalanthus elongatus f. graminifolius Herzog.

Additional citations: BRAZIL: Goiás: W. R. Anderson 8039 (Ld, N); Glaziou 22300 [Macbride photos 10683] (B—cotype, N—photo of cotype, W—photo of cotype), 22301 (B—cotype, W—1112538—cotype); Irwin, Grear, Souza, & Reis dos Santos 13253 (N, W—2759021, Z), 13298, in part (Ld, N).

SYNGONANTHUS FERRENSIS Alv. Silv., Fl. Mont. 1: 355—356, pl. 225. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 355—356 & 417, pl. 225. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 18 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke, Résumé 107 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 962. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 225. 1928.

This species is based on A. Silveira 736, which, apparently, consists of two separate collections: (1) from "In humidis prope Lagoa do Ferro, altitudine 1.050 m. in vicinia urbis Patrocinio" and (2) "in humidis prope Milho Verde, in Serra do Espinhaço", Minas Gerais, Brazil, the former collected in September, 1924, and

the latter in June, 1925, both deposited in the Silveira herbarium. Curiously, on page 417 of his work Silveira (1928) cites his no. 736 as only from Lagoa do Ferro, collected in 1924. Worsdell (1941) cites plate "224" as illustrating this species, crediting 225 to S. pauciflorus Alv. Silv., but both in his text and under the plate Silveira plainly gives "CCXXV" as the number of the illustration of S. ferrensis. He comments that the "Species a S. imundato caespite foliorum in apice caulis praecipue differt; a S. paraensis foliis angustioribus, sepalis floris masculis acutis (haud obtusis), pedunculis multo majoris et aliis characteribus distinguitur". Thus far it is known only from the original collections.

SYNGONANTHUS FERTILIS (Körn.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 263. 1903.

Synonymy: Paepalanthus fertilis Körn. in Mart., Fl. Bras. 3 (1): 448—449, pl. 58, fig. 1. 1863. Dupatya fertilis (Körn.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya fertilis Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Syngonanthus fertilis Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908.

Additional bibliography: Körn. in Mart., Fl. Bras. 3 (1): 448—449, 500, & 507, pl. 58, fig. 1. 1863; Benth. & Hook. f., Gen. Pl. 3 (2): 1023. 1883; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 2: 402. 1894; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 3, 246, 263, 290, & 293. 1903; Prain, Ind. Kew. Suppl. 3: 175. 1908; Stapf, Ind. Lond. 4: 518. 1930; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 18, 29, 48, 57, & 60. 1946; Moldenke, Phytologia 2: 352. 1947; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 65, 91, & 213. 1949; Moldenke, Phytologia 4: 312—313. 1953; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 73, 107, 280, 325, & 491. 1959; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 2: 402. 1960; Moldenke, Résumé Suppl. 3: 14. 1962; Moldenke, Fifth Summ. 1: 127, 173, & 480 (1971) and 2: 582 & 962. 1971; Moldenke, Phytologia 28: 437 (1974), 34: 257 (1976), and 35: 358. 1977.

Illustrations: Körn. in Mart., Fl. Bras. 3 (1): pl. 58, fig. 1. 1863.

Anderson refers to this plant as an herb and found it in wet sand of grassy hillside campo, while Oldenburger and his associates report it "common" on a "savanna in transition of fine white sand to moist fine sand and clay" and report the vernacular name, "türepanaimo". It has been found growing at 300—1250 m. altitude, flowering in April, July, November, and December and fruiting in November. Duke 8009 is very similar in habit and appearance to S. humboldtii (Kunth) Ruhl., an obviously very closely related species. Ruhland (1903) cites only the original cotypes, G. Gardner 2960 and h062 from Piauí and Weddell 3397 from Mato Grosso,

Brazil, commenting that the species "Habitu quasi inter duas praecedentes [S. verticillatus (Bong.) Ruhl. and S. humboldtii (Kunth) Ruhl.] media".

Gardner 2960 is cited by Körnicke (1863) under what he called Paepalanthus caulescens var. b subvar. Σ Körn., a taxon now reduced to synonymy under typical Syngonanthus caulescens (Poir.) Ruhl.

Material has been misidentified and distributed in some herbaria under the name Paepalanthus caulescens Kunth. On the other hand, the Oldenburger, Norde, & Schulz ON.558, distributed as S. fertilis, seems better placed as S. humboldtii (Kunth) Ruhl.

Additional citations: BRAZIL: Amazonas: Murça Pires 80 [Herb. IPEAN 15059] (Ld). Goiás: W. R. Anderson 8130 (Ld, N); Mattos 364 [Herb. Fac. Nac. Farmac. 7741] (Ld); Murça Pires & Mattos 9843a (Lw); Murça Pires, Silva, & Souza 9843a (N); Onishi, Barroso, & Maia 104 (Ld); A. Saint-Hilaire Cl.712 [U. S. Nat. Herb. photo 5901] (N—photo, P, P). Mato Grosso: Malme 3342 (Ca—524502, W—1483484). Piauí: G. Gardner 2960 (B—cotype, N—cotype). Pará: Ducke 8009 (Gl), 11328 (Bs), 12025 (Z); W. A. Egler 275 (Bs); Egler & Raimundo s.n. [W. A. Egler 948; Herb. Mus. Goeldi 23630] (Bd—12295, Mm); Fröes 29815 (Be—79771, Le); Goeldi 15065 (Bs); Murça Pires, Black, Wurdack, & Silva 6078 (N), 6108 (N), 6188 (N); Sick E.667b [Herb. Brad. 4617] (Bd), B.669a [Herb. Brad. 4613] (Bd), s.n. [Herb. Brad. 4705] (Bd); Travessos s.n. [Serra do Cachimbo, VI.1956; Herb. Brad. 21100] (Lw). MOUNT-ED ILLUSTRATIONS: Körn. in Mart., Fl. Bras. 3 (1): pl. 58, fig. 1. 1863 (B, N, Z); drawings by Körnicke (B, B).

SYNGONANTHUS FILIPES Alv. Silv., Fl. Mont. 1: 323—324, pl. 205. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 323—324 & 417, pl. 205. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 477—478. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Worsdell, Ind. Lond. Suppl. 2: 426. 1941; Moldenke, Known Geogr. Distrib. Erioc. 18 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91 & 213. 1949; Moldenke, Résumé 107 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 962. 1971.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 205. 1928.

This species is based on A. Silveira 547 from "In campis arenosis in Serra do Cipó", Minas Gerais, Brazil, collected in April of 1909 and deposited in the Silveira herbarium. Silveira (1928) says of it: "Ab affinitus forma et colore bractearum involucran-tium praecipue differt".

Citations: BRAZIL: Minas Gerais: Murça Pires & Black 3310 (Be—63756).

SYNGONANTHUS FISCHERIANUS (Bong.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 256—257. 1903.

Synonymy: Eriocaulon fischerianum Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 627. 1831. Paepalanthus nardifolius Kunth, Emum. Pl. 3: 532. 1841. Eriocaulon nardifolium Kunth ex Steud., Syn. Pl. Glum. 2: [Cyp.] 281. 1855. Paepalanthus fischerianus (Bong.) Körn. in Mart., Fl. Bras. 3 (1): 455. 1863. Paepalanthus fischerianus Körn. in Mart., Fl. Bras. 3 (1): 455. 1863. Dupatya fischeriana (Bong.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Eriocaulon nardifolium Steud. apud Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 878, in syn. 1893. Dupatya fischeriana Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902 [not D. fischeriana Kuntze, 1903]. Syngonanthus fischerianus Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908. Syngonanthus breviramossus C. Diogo, Bol. Mus. Nac. Rio Jan. 1: 28—29. 1923. Paepalanthus vaginatus Mart. ex Moldenke, Phytologia 4: 313, in syn. 1953 [not P. vaginatus Körn., 1863]. Syngonanthus fischerianus var. hatschbachii Moldenke, Phytologia 28: 403. 1974.

Bibliography: Bong., Mém. Acad. Imp. Sci. St. Pétersb., ser. 6, 1: 627. 1831; Bong., Ess. Monog. Erioc. 27. 1831; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Emum. Pl. 3: 532, 575, 613, & 625. 1841; D. Dietr., Syn. Pl. 5: 262 & 267. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 279, 281, & 334. 1855; Körn. in Mart., Fl. Bras. 3 (1): 279, 455, 456, & 507. 1863; Körn. in Warm., Vidensk. Meddel. Naturh. Foren. Kjöbenh. 23: 315. 1871; Kuntze, Rev. Gen. Pl. 2: 745. 1891; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 1, 1: 878 (1893) and imp. 1, 2: 402. 1894; Kuntze, Rev. Gen. Pl. 3 (2): 329. 1898; Malme, Bih. Svensk Vet.-Akad. Handl. 27 (3), no. 11: 31. 1901; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902; Ruhl. in Engl., Pflanzenreich 13 (4-30): 2, 28, 29, 245, 256—257, 285, 286, & 293. 1903; Beauverd, Bull. Herb. Boiss., ser. 2, 8: 299. 1908; Prain, Ind. Kew. Suppl. 3: 175. 1908; C. Diogo, Bol. Mus. Nac. Rio Jan. 1: 28—29. 1923; Ruhl. in Engl. & Prantl, Nat. Pflanzenfam., ed. 2, 15a: 40. 1930; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 2, 145. 1941; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 2, 1: 878 (1946) and imp. 2, 2: 402. 1946; Moldenke, Known Geogr. Distrib. Erioc. 17, 18, 29, 34, 37, 48, 51, 56, & 57. 1946; Moldenke, Phytologia 2: 374. 1947; Moldenke, Lilloa 14: 66. 1948; Moldenke, Alph. List Cit. 2: 460 & 627 (1948), 3: 956 & 968 (1949), and 4: 1015. 1949; Moldenke, Known Geogr. Distrib. Verbenac., [ed. 2], 91, 97, & 213. 1949; Moldenke, Phytologia 4: 313. 1953; Angely, Fl. Paran. 10: 15. 1957; Anon., U. S. Dept. Agr. Bot. Subj. Index 5: 4227. 1958; R. C. Foster, Contrib. Gray Herb. 184: 39. 1958; Durand & Jacks., Ind. Kew. Suppl. 1, imp. 3, 145. 1959; Moldenke, Résumé 106, 107, 115, 280, 288, 290, 325, 326, 328, & 491. 1959; Angely, Fl. Paran. 16: 77. 1960; Jacks. in Hook. f. & Jacks., Ind. Kew., imp. 3, 1: 878 (1960) and imp. 3,

2: 402. 1960; Rennó, Levant. Herb. Inst. Agron. Minas 71. 1960; Angely, Fl. Paran. 17: 24. 1961; Angely, Fl. Anal. Paran., ed. 1, 201. 1965; Moldenke, Résumé Suppl. 12: 12 (1965) and 15: 5. 1967; Moldenke, Fifth Summ. 1: 173 & 480 (1971) and 2: 500, 507, 582, 586, 592, 636, & 962. 1971; Angely, Fl. Anal. & Fitogeogr. Est. S. Paulo, ed. 1, 6: 1162 & Ind. 20 & 28. 1972; Moldenke, Phytologia 25: 244 (1973), 28: 403 & 440 (1974), 31: 386 & 408 (1975), and 35: 260 & 448. 1977.

The type of this species is a D. Fischer unnumbered collection from Minas Gerais, Brazil, deposited in the Leningrad herbarium. Bongard's original (1831) description is "acaule; foliis caespitosis vagina brevioribus, linearibus acutis glabris; pedunculo solitario pubescente; vagina apice trifida. Tab. LIX. Habitat in provincia Minas Geraes. Floret..... ① Mecum benevole communicavit cel. D. Fischer." The plate 59 to which he refers was never actually published and probably exists now only in the Leningrad library or herbarium.

Recent collectors describe this plant as an herb with white flowers and have encountered it on wet and on wet sandy campos, in swamps and soggy marshes, in swales and in berjo (wet sedge meadows), at altitudes of 700—1300 meters, flowering from September to February, and fruiting in February, May, September, November, and December. Hatschbach found it growing on a "campo alagadico", while Klein reports it from a "banhado de campo".

The type of Paepalanthus nardifolius is Sellow 4957 from "Brasília meridionalis", deposited in the Berlin herbarium; that of Syngonanthus breviramis is F. Müller 36 in the Rio de Janeiro herbarium and that of S. fischerianus var. hatschbachii is Hatschbach 32760 in the Moldenke herbarium. Jackson (1894), following the DeCandolle code of nomenclature, reduced S. fischerianus to synonymy under Paepalanthus nardifolius Kunth.

It should be noted that the Angely (1972) publication listed in the bibliography above is often cited as "1970", the title-page date, but was not actually published until 1972; similarly, the Malme (1901) work is sometimes cited as "1903". Angely gives the overall distribution of S. fischerianus as "Brasília: do Amazonas até S[anta] C[atarina]". Foster (1958) records it from Bolivia, without citing a confirming specimen; Malme (1901) cites Regnell III.1263 [16/11/1864] from Minas Gerais; Körnicke (1871) cites Lund s.n. from São Paulo. Ruhland (1903) cites the following: Goiás: Glaziou 22298. Minas Gerais: Burchell 3782, Lhotzky s.n., Lund s.n., Mendonça 318, Raben s.n., Regnell III.1263, Sellow s.n., Widgren 823. Pernambuco: Martius s.n. São Paulo: Glaziou 7997, Lund s.n., L. Riedel 1478.

The R. S. Santos s.n. [12.9.63] collection, cited below, is a mixture with something non-ericaulaceous. Material of S. fischerianus has been misidentified and distributed in some herbaria as S. widgrenianus (Körn.) Ruhl. [a species which it closely resembles] and as Eriocaulon sp. On the other hand, the Regnell

III.1265 [3/1857], distributed as S. fischerianus, actually is S. elegantulus Ruhl., while Herb. Jard. Bot. Belo Horiz. 32594 & 45187, Kuntze s.n. [Ost Velasco, 200 m., VII.92] & s.n. [Matto-grosso, 200 m., VII.92], Mendes Magalhães 162, J. E. Oliveira 1317, Spruce s.n. [In vicinibus Santarem, Aug. 1850], J. Steinbach 5507, and Ule 7665 are S. gracilis var. aureus Ruhl.

Additional citations: BRAZIL: Minas Gerais: Lhotzky s.n. (B); Regnell III.1263 [16/11/1864] (W--200758); R. S. Santos s.n. [12.9.63] (Bd--28641); Sellow 4835 (B), 4957 (B), s.n. (B); Widgren 823 [6/12/1845] (W--936249). Paraná: A. Castellanos 21868 (Ja-126564); Dombrowski 2087 [Kuniyoshi 1812] (Ac), 2212 [Kuniyoshi 1956] (Ld); Dombrowski, Saito, & Pereira 826/616/210 (Ac); Hatschbach 1138 (N, Sp--84603), 5548 (Mm), 22510 (Ac, N), 30989 (Ld), 32760 (Z), 33474 (Ld); Hatschbach, Smith, & Klein 28247 (Ld); Mattos 4328 (N). Santa Catarina: Klein 3612 (Ld); Mello Filho 682 [Herb. Mus. Nac. Rio Jan. 49607] (Ld); F. Müller 36 (Ja--4819, Z--photo); Reitz & Klein 6104 [Herb. Barb. Rodr. 16289] (N, S, Sm), 10445 (Ac), 14230 (Ld); Smith & Klein 8260 (Z), 8536 (Ok), 13451 (W--2451594), 13685 (Ac), 13984 (W--2451597), 15476 (Ac); Smith & Reitz 8707 (N, Ok), 8911 (W--2248755). São Paulo: Bailey & Bailey 850 (Ba); Brade 6582 [Herb. Inst. Biol. S. Paulo 6582; Herb. Coll. 5532] (Mu, N); W. Hoehne 766 (N); Leite 3901 (N), s. n. [Campos do Jordão, V.1950] (N); Martius s.n. [ad aquas puras prope Ypanema, Decembri 1817] (Mu); Moldenke & Moldenke 19644 (B, Es, F, Fy, Lg, Lm, Mg, Mr, N, No, Ot, Rs, S, Sm, Ss), 19909 (Es, N); Pabst 5777 [Pereira 5950; Herb. Brad. 21960] (Lw); L. Riedel 1478 [Macbride photos 10684] (B, B, M, Mu, N--photo, Ut--401, W--photo). MOUNTED ILLUSTRATIONS: drawings by Kunth & Körnicke (B).

SYNGONANTHUS FLAVICEPS Alv. Silv., Fl. Mont. 1: 328--330, pl. 209. 1928.

Bibliography: Alv. Silv., Fl. Mont. 1: 328--330 & 417, pl. 209. 1928; Wangerin in Just, Bot. Jahresber. 57 (1): 478. 1937; Fedde in Just, Bot. Jahresber. 57 (2): 895. 1938; A. W. Hill, Ind. Kew. Suppl. 9: 271. 1938; Moldenke, Known Geogr. Distrib. Erioc. 18 & 57. 1946; Moldenke, Known Geogr. Distrib. Verbenav., [ed. 2], 91 & 213. 1949; Moldenke, Résumé 107 & 491. 1959; Moldenke, Fifth Summ. 1: 173 (1971) and 2: 962. 1971; Moldenke, Phytologia 35: 348, 438, & 439. 1977.

Illustrations: Alv. Silv., Fl. Mont. 1: pl. 209. 1971.

This species is based on A. Silveira 574 from "In campis arenosis in Serra do Cabral", Minas Gerais, Brazil, collected in May, 1910, and deposited in the Silveira herbarium. Silveira (1928) says of it: "A S. anthemidifloro (Bong.) Ruhl. praecipue differt colore capitulorum, indumento foliorum et forma bractearum involu-
crantium". It also has much the genetal appearance of S. canaliculatus Alv. Silv. and S. densifolius Alv. Silv. Irwin and his

associates assert that its inflorescences rise to 50 cm. and the flower-heads are white. They encountered it "on wet campo in summit gray sandy soil", at 1200 m. altitude, flowering in March.

It is of interest to note that Silveira's illustration of the species is omitted from the "Index Londinensis Supplement" of Worsdell (1941).

Citations: BRAZIL: Minas Gerais: Irwin, Fonsêca, Souza, Reis dos Santos, & Ramos 27123 (N, W—2759020, Z).

SYNGONANTHUS FLAVIDULUS (Michx.) Ruhl. in Engl., Pflanzenreich 13 (4-30): 256. 1903.

Additional & emended synonymy: Eriocaulon flavidulum Michx., Fl. Bor.-Am., imp. 1, 2: 166. 1803. Eriocaulon spathaceum Raf., Atl. Journ. 1: 121. 1832. Eriocaulon flavidulum var. cinereum Raf., Autikon Bot., imp. 1, 189. 1840. Paepalanthus flavidulus (Michx.) Kunth, Enum. Pl. 3: 532. 1841. Eriocaulon flavidum Michx. ex A. Gray, Man. Bot., ed. 2, 489, in syn. 1856. Paepalanthus flavidus Kunth ex A. Gray, Man. Bot., ed. 2, 489. 1856. Paepalanthus flavidulus Kunth apud A. W. Chapm., Fl. South. U. S., ed. 1, imp. 1, 503. 1860. Paepalanthus borealis Körn. in Mart., Fl. Bras. 3 (1): 508, nom. nud. 1863. Paepalanthus flavidulus (Steud.) Kunth apud Hieron. in Engl. & Prantl, Nat. Pflanzenfam., ed. 1, 2 (4): 27. 1888. Dupatya flavidula (Michx.) Kuntze, Rev. Gen. Pl. 2: 745. 1891. Dupatya flavidula (Michx.) Morong, Bull. Torrey Bot. Club 18: 359. 1891. Dupatya flavidula Kuntze apud Durand & Jacks., Ind. Kew. Suppl. 1, imp. 1, 145. 1902. Syngonanthus flavidulus Ruhl. apud Prain, Ind. Kew. Suppl. 3: 175. 1908. Syngonanthus flavidus (Michx.) Ruhl. ex A. C. Martin, Am. Midl. Nat. 36: 533. 1946. Dupotya flavidula (Michx.) Kuntze ex Moldenke, Résumé 282, in syn. 1959. Eriocaulon caespitosum Cabanis ex Moldenke, Résumé Suppl. 1: 16, in syn. 1959 [not E. caespitosum Poepp., 1863, nor Wikstr., 1820]. Dupataya flavidula (Michx.) Kuntze ex Moldenke, Résumé Suppl. 3: 31, in syn. 1962. Syngonanthus flavidus Michx. ex Moldenke, Résumé Suppl. 3: 35, in syn. 1962. Paepalanthus flavidulus Kunth ex Moldenke, Résumé Suppl. 16: 26, in syn. 1968. Dupataya flavidula (Michx.) Kuntze ex Moldenke, Fifth Summ. 1: 487, in syn. 1971. Syngonanthus dupatya Mart., Phytologia 34: 277, in syn. 1976.

Additional & emended bibliography: Michx., Fl. Bor.-Am., imp. 1, 2: 166. 1803; Roem. & Schult. in L., Syst. Veg., ed. 15 nova, 2: 868. 1817; Steud., Nom. Bot. Phan., ed. 1, 313. 1821; S. Ell., Sketch Bot., imp. 1 & 2, 2: 566—567 & 728. 1824; Spreng. in L., Syst. Veg., ed. 16, 3: 776. 1826; Bong., Ess. Monog. Erioc. 4. 1831; Raf., Atl. Journ. 1: 121. 1832; Raf., Autikon Bot., imp. 1, 189. 1840; Steud., Nom. Bot., ed. 2, 1: 585. 1840; Kunth, Enum. Pl. 3: 532, 613, & 625. 1841; D. Dietr., Syn. Pl. 5: 262. 1852; Steud., Syn. Pl. Glum. 2: [Cyp.] 281 & 334. 1855; A. Gray, Man. Bot., ed. 2, imp. 1, 489. 1856; Körn., Linnaea 27: 584, 590—592,

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[to be continued]